PB-229 409

POLLUTION OF INTERSTATE WATERS OF PUGET SOUND, STRAIT OF JUAN DE FUCA AND THEIR TRIBUTARIES AND ESTUARIES - STATE OF WASHINGTON. SESSION (1st) HELD AT OLYMPIA, WASHINGTON ON JANUARY 16-17, 1962. VOLUME III. APPENDIX. TRANSCRIPT OF CONFERENCE

Public Health Service
Washington, D. C.

1962

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PB 229 409

TRANSCRIPT OF CONFERENCE

IN THE MATTER OF

POLLUTION OF INTERSTATE WATERS

PUGET SOUND, STRAIT OF JUAN DE FUCA
AND
THEIR TRIBUTARIES AND ESTUARIES -
STATE OF WASHINGTON

Reproduced by
NATIONAL TECHNICAL
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U S Department of Commerce
Springfield VA 22151

First Session

January 16-17, 1962

Olympia, Washington

Volume III

Appendix

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APPENDIX TO PRESENTATION ON BEHALF OF WASHINGTON STATE POLLUTION CONTROL COMMISSION

BEFORE THE STATE OF WASHINGTON
POLLUTION CONTROL COMMISSION

IN THE MATTER OF THE PETITION OF FIBREBOARD PAPER PRODUCTS CORPORATION FOR A HEARING ON TEMPORARY PERMIT NUMBER T-400	PETITION FOR HEARING (PERMIT T-400)

I.

Petitioner, Fibreboard Paper Products Corporation, a Delaware corporation authorized to do business in and doing business in the State of Washington at 1313 Marine Drive, Port Angeles, Washington, respectfully shows:

II.

Petitioner is now and for many years has been engaged in operating a substantial pulp and paper plant in Port Angeles, consisting of a groundwood mill, a sulphite mill and a paper board mill. Petitioner employs an average of 190 employees at an annual payroll of approximately $1,225,000.00. Petitioner purchases services and supplies well in excess of $2,500,000.00 - most of which is purchased locally in and around Port Angeles. Petitioner pays property and other taxes (not including sales and excise taxes) in excess of $100,000.00.

Petitioner also operates plants in other states and the Port Angeles plant, under present economic conditions, is definitely a marginal plant. Any unreasonable burdens raising Petitioner's expenses or interfering substantially with Petitioner's operations, would eliminate all economic justification for continuing to operate the Port Angeles plant.

III.

Petitioner has in the past and is now lawfully disposing of its waste effluent, through deep water dispersion out-falls, into the West-End of Port Angeles Harbor. Such receiving waters are devoted entirely to industrial uses and are essentially industrial and not recreational waters. There are no oyster beds, fish spawning or rearing areas, or any other such activities located in Port Angeles Harbor. Port Angeles Harbor is swept clean by unusually strong tides and currents, and is not unduly polluted.

IV.

Petitioner's activities in the past have been considered as two separate units: the groundwood-sulphite mills, with a maximum allowable waste discharge of 5,202,000 gallons/day; and the paper mill, with a maximum allowable waste discharge of 3,700,000 gallons/day. The discharge of waste effluent is necessary to the Petitioner's operations and to the pulp and paper industry in general.

V.

In discharging this waste effluent into the Port Angeles Harbor, Petitioner has expended considerable time and money in conducting its operations so as to assure that such disposal would meet all properly established standards designed to prevent undue pollution of the receiving waters. Petitioner's operations, as presently conducted, more than meet all such established standards. Petitioner's operations are not "unduly polluting" the receiving waters.

VI.

The City of Port Angeles, having a population of 12,653, has in the past and is now discharging all of its sewage into the Port Angeles Harbor in a raw, untreated form. Even with this extreme discharge of waste, however, the waters of the harbor still are not unduly polluted.

VII.

On May 29, 1961, Petitioner received from this Commission permit No. T-400, dated May 19, 1961, a true copy of which is attached (Exhibit A) and made a part hereof. This permit combined the groundwood-sulphite mills and the paper board mill, previously considered as separate units, into a single unit. In doing so, permit T-400 drastically reduced the permitted waste disposal to 5,200,000 gallons/day for the combined units (Groundwood Mill, Sulphite Mill and Paper Mill). This is a reduction of 3,702,000 gallons/day from the total of 8,902,000 gallons/day allowable maximum discharge which Petitioner had been permitted to dispose of in the past. The reduced amount allowed by permit T-400 is totally inadequate for continued maximum operation of the Port Angeles plant. Such a reduction is not based on any properly established standards determining undue pollution. This reduction is arbitrary and capricious, unreasonable, and contrary to the mandates of RCW Chapter 90.48.

VIII.

Permit T-400 also imposes new, radical obligations and burdens upon Petitioner, including the abandonment of its present method of discharging waste into Port Angeles Harbor, and requires the construction of a completely new system for discharging such waste effluent directly into the Straits of Juan de Fuca (which is subject to substantial recreational use). The construction of the new discharge system would require the acquisition of rights-of-way through the City of Port Angeles, and an initial expenditure by Petitioner estimated to be in excess of $490,000.00. The denial of the right to continue its present operations is arbitrary, capricious, unreasonable, unsupported by any properly established standard regulating pollution, and contrary to RCW Chapter 90.48. Permit T-400 and the requirements of said permit are not based upon any properly established standards for determining undue pollution. The requirement for construction of disposal facilities to the Straits of Juan de Fuca is arbitrary, capricious, unreasonable, and contrary to RCW Chapter 90.48. Such a requirement is unsupported by any properly established standard of undue pollution, and the permit is totally devoid of any indication as to what standards, if any, were utilized in establishing this obligation as a condition to the permit. Furthermore, by refusing to specify the standards to be applied to determine undue pollution, the provision in the permit that the Petitioner may submit an alternative method of disposal which is "equally effective" becomes completely meaningless and was obviously included merely as a formality.

IX.

The present competitive position of Petitioner's Port Angeles plant does not economically justify its expenditure of over $490,000.00 to meet the conditions of permit T-400. Even if the Port Angeles plant was in a substantially superior competitive position, it is still extremely doubtful that Petitioner would be justified in making such an expenditure. Permit T-400 is merely a temporary permit of less than 3 years' duration. The construction of the new disposal system required by the temporary permit would barely have been completed upon the expiration of the permit. Petitioner has no assurances that it will not suddenly be faced at that time with additional or different conditions and expenditures. Petitioner, having been denied any indication as to the standards for determining undue pollution that the Commission has and will utilize, cannot even make a calculated guess as to the situation which may exist upon the expiration of this temporary permit.

X.

Petitioner believes that permit T-400, the requirements thereof, and the methods whereby these requirements were determined are: arbitrary; capricious; unreasonable; in excess of the Commission's authority, contrary to RCW Chapter 90.48; and in violation of the Washington Administrative Procedures Act, the Constitution of the State of Washington, and the Constitution of the United States. Therefore, Petitioner demands a hearing as a matter of right under RCW 90.48.130, at which hearing the Commission must sustain the burden of proving facts and properly established standards sufficient to justify its actions in taking the Petitioner's right to reasonably utilize the waters of Port Angeles Harbor to disperse its waste effluent and in imposing improper and unreasonably burdensome requirements upon Petitioner.

XI.

Petitioner expressly reserves the right to challenge the reasonableness, effect, legality and constitutionality of any and all standards, rules and regulations, statutes, records, bulletins, reports, customs and any and all other matters which the Commission may attempt to utilize to sustain the requirements of permit T-400.

XII.

In order to adequately prepare for the hearing sought by this petition, Petitioner respectfully requests that the Commission furnish to, or make available for examination by representatives of Petitioner the following data and information:

(a) All studies of and reports relating to the waters of Port Angeles Harbor and the Straits of Juan de Fuca which the Commission has taken into consideration and upon which it relied in setting the terms and conditions of permit T-400 and/or in adopting conclusions A and B contained in the Certified Copy of Resolution which was submitted to Petitioner with permit T-400 and a true copy of which is attached as (Exhibit A-1) and made a part hereof.

(b) All technical bulletins, matters of technical knowledge, and matters of notorious fact and business custom contained in public records of the Commission, which in any manner relate to the waters of Port Angeles Harbor and the Straits of Juan de Fuca, to the issuance of permit T-400, to the terms and conditions of permit T-400, and/or the adoption of conclusions A and B contained in Exhibit A-1.

(c) All technical reports made by or to the Commission upon which the Commission based the terms and conditions of permit T-400 and/or conclusions A and B contained in Exhibit A-1.

(d) Definitions or determinations of the qualities and properties of the waters of Port Angeles Harbor constituting undue pollution thereof which have been relied upon by the Commission in issuing permit T-400, setting the terms and conditions of permit T-400, and/or adopting conclusions A and B contained in Exhibit A-1.

(e) The records and minutes of all hearings conducted having any relationship to the waters of Port Angeles Harbor or the Straits of Juan de Fuca, the terms and conditions of permit T-400, the issuance of permit T-400, and/or the adoption of conclusions A and B contained in Exhibit A-1.

(f) The records and minutes of all meetings of the State of Washington Pollution Control Commission at which any matters relating to the waters of Port Angeles Harbor or the Straits of Juan de Fuca, the terms and conditions of permit T-400, the issuance of permit T-400, and/or the adoption of conclusions A and B contained in Exhibit A-1 were discussed.

(g) Copies of the findings of fact upon which the terms and conditions of permit T-400, the issuance of permit T-400, and the adoption of conclusions A and B contained in Exhibit A-1 were based.

XIII.

Petitioner expressly reserves the right to amend and/or modify this petition as justice and the rights of Petitioner may require.

XIV.

WHEREFORE, Petitioner respectfully requests that the Commission:

(a) Grant to Petitioner a hearing on and with respect to its application for a permanent permit.

(b) Furnish to Petitioner the information and data herein requested.

(c) Fix a time for such hearing as reasonably to allow for examination by Petitioner of such data and information and to prepare for the presentation of relevant evidence to the Commission.

(d) Following such hearing, grant Petitioner a proper and permanent permit allowing adequate amounts of waste effluent to be discharged in Port Angeles Harbor conditioned only upon such terms and conditions shown to be lawful and necessary to comply with properly established standards against undue pollution of the receiving waters.

(e) Revoke permit T-400 and declare its terms and conditions to be null and void.

(f) Stay all terms and conditions of permit T-400 pursuant to RCW 90.48.130 and RCW 90.48.160.

Respectfully submitted

Bogle, Bogle & Gates
BOGLE, BOGLE & GATES

Stanley B. Long
~~STANLEY B. LONG~~

Ronald T. Schaps
RONALD T. SCHAPS

Attorneys for Fibreboard
Paper Products Corporation,
Petitioner

Office and P. O. Box Address:

603 Central Building
Seattle 4, Washington

Copy received this 9th day
of June 1961
Robert [illegible]
Asst Atty General

RECEIVED
JUN 9 1961
POLLUTION CONTROL COMMISSION
FILE
Wallace Bergerson
per [illegible]

APPENDIX a11
BILL'S RECORDING SERVICE

VERIFICATION

STATE OF WASHINGTON)
) ss.
COUNTY OF KING)

C. V. Basom, being first duly sworn on oath deposes and says:

That he is the Resident Plant Manager of Fibreboard Paper Products Corporation, the Petitioner herein, that no officer of the corporation is present in the State of Washington, and that he is authorized to make this verification for and on its behalf; that he has read the foregoing Petition, knows the contents thereof and believes the same to be true.

C. V. Basom
(C. V. Basom)

SUBSCRIBED and SWORN TO before me this 9th day of June, 1961.

Maxine W. Marsh
Maxine W. Marsh
Notary Public in and for the
State of Washington,
residing at Seattle

S. F. No. 8574—5-55—2M. 41901.

STATE OF WASHINGTON
POLLUTION CONTROL COMMISSION
OLYMPIA, WASHINGTON

Permit **T** 400

In accordance with Chapter 71, Laws of 1955,
A WASTE DISCHARGE PERMIT is issued to:

Date of issue May 19, 1961

Date of expiration Nov. 24, 1963

Fibreboard Products, Incorporated
1313 Marine Drive
Port Angeles, Washington

Groundwood Mill
Sulphite Mill
Paper Mill

Waste not to exceed 5,200,000 gallons per day may be discharged to

Port Angeles Harbor, subject to the following conditions:

TEMPORARY

1. The word "waste" in the above statement refers to the total volume of cooling and contaminated waters to be discharged.

2. All waste effluent streams are to be combined and then discharged through a single outfall line to waters of the Strait of Juan de Fuca, such facilities to be installed and in use by the expiration date of this permit. (A determination shall be made of receiving water to determine the location and type of outfall structure which will provide satisfactory waste dilution).

3. Facilities for the storage of waste cooking liquors with provisions for continuous discharge of a uniform concentration and flow to the outfall sewer are to be installed and in use by the expiration date of this permit.

4. Facilities for automatic flow recording and sampling are to be installed on the outfall sewer by the expiration date of this permit.

5. Engineering plans for the above-mentioned facilities (permit conditions 2, 3, and 4) accompanied by pertinent supporting data are to be submitted to this Commission for review and approval by March 1, 1962.

6. A report of effluent characteristics is to be submitted monthly, based upon the analysis of composited effluent samples. This report shall contain the following information for each day of operation:

   1. Pulp production in tons;
   2. Waste flow in gallons;
   3. Suspended combustible solids losses in pounds;
   4. Total solids losses in pounds.

This permit does not allow the discharge of wastes other than those mentioned herein. A new application shall be submitted whenever a change in the waste to be discharged is anticipated.

This permit is subject to termination if the Commission finds: (1) That it was procured by misrepresentation of any material fact or by lack of full disclosure in the application; (2) That there has been a violation of the conditions thereof; (3) That a material change in quantity or type of waste disposal exists.

In the event that a material change in the conditions of the state waters utilized creates a dangerous degree of pollution, the Commission may specify additional conditions to this permit.

Signed: ....
Director, Pollution Control Commission

This permit does not in any way release the permittee from liability for damage to persons or property caused by or resulting from the discharge of waste.

12< Exhibit - "A"

7. The normal inplant slime control program and procedures, in effect or as revised, shall be reported in detail giving chemical descriptions, amounts, and methods, and points of application for each slimeicide chemical used. Deviations from the above programs and procedures shall be noted on the monthly effluent report.

8. Sewage treatment facilities are to be installed or connection made to the municipal sewer system by the expiration date of this permit.

9. This permit is conditioned upon the continuous and efficient maintenance and operation of all existing waste recovery and pollution abatement facilities operated by or under the control of permittee.

   In the event of an emergency or condition beyond the control of the permittee, which prevents continuous operation of existing waste recovery and pollution abatement facilities, permittee shall:

   1. Immediately notify this Commission;
   2. Provide the Commission access to its facilities and all pertinent information as to cause of any interruption in operation of such waste recovery and pollution abatement facilities; and
   3. Submit such other information as the Commission may request from time to time thereafter.

10. The conditions under which this temporary permit has been extended are prescribed pursuant to Chapter 90.48 of the Revised Code of Washington and Section IV of Chapter 04.250 of the Rules of Practice and Procedure before the Pollution Control Commission.

11. In fixing the conditions under which this temporary permit has been extended the Commission has taken official notice of the matters of technical knowledge, notorious fact and business custom contained in its public records, "technical bulletins", and reports of permittees engaged in industrial operations in the affected areas.

12. Any alternative method for the removal and disposal of wastes which are equally effective to those required by conditions 2, 3, and 4 of this permit will be considered if submitted prior to January 1, 1962.

Director, Pollution Control Commission

13<

APPENDIX a14
BILL'S RECORDING SERVICE

CERTIFIED COPY OF RESOLUTION

Be it hereby resolved that Temporary Permit number 400 shall be issued immediately upon the conditions set forth therein and on the further condition that any laternative method for removal and disposal of wastes which are equally effective to those required by conditions 2, 3,and 4 of this permit will also be considered if submitted prior to January 1, 1962.

The Commission further finds:

A. That the conditions upon which this permit is issued are necessary to effectuate the Policy of RCW 90.40.010; and

B. That the disposal of the waste material as proposed in the application would otherwise unduly pollute the waters of the State of Washington.

Subscribed and sworn to before me this 23 day of May, 1961.

Preston O Thomas

Notary Public in and for the State of Washington

Residing at Olympia, Washington

RECEIVED
JUN 9 1961
POLLUTION CONTROL COMMISSION
FILE
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AIN
POT
OTT
BJ

APPENDIX a15
BILL'S RECORDING SERVICE

Exhibit - "A-1"

BEFORE THE POLLUTION CONTROL COMMISSION
OF THE
STATE OF WASHINGTON

IN THE MATTER OF THE APPLICATION)
FOR HEARING OF PUGET SOUND PULP (
& TIMBER CO. IN RESPECT TO)
(
PERMIT T 401) APPLICATION FOR HEARING
(
and)
(
DENIAL OF APPLICATION)
FOR PERMANENT WASTE (
DISPOSAL PERMIT)

Puget Sound Pulp and Timber Co. hereby applies for a hearing with respect to the specification of all conditions of Permit T 401, issued by the above Commission bearing date of May 19, 1961, and with respect to the denial of the Company's application for a permanent permit. This application is made pursuant to provisions of RCW 90.48.130 and 90.48.210. The Company received the above-described permit and notice of denial of its application May 29, 1961.

1. Compliance with permit T 401, if such in fact could be achieved, would jeopardize the economic condition of the Company to an extent which raises serious doubts of its capabilities to continue its operations and retain its employees. Furthermore, these requirements would place a great financial burden on the Company, entirely disproportionate to the improvement, if any, which might result in the waters into which the Company's effluents are dispersed.

2. The Company's pulp mill was constructed in 1926 on Bellingham Bay on land now within the City of Bellingham, and has continuously operated at the same site since that date. The Company employs directly approximately 765 persons in its pulp and paper operations with a direct annual payroll estimated at

$4,795,650.00. In 1960 it directly supported in its operating area additional annual payrolls of approximately $2,600,000.00 engaged in logging operations. The annual value of its products produced in Bellingham exceeds $32,000,000.00. In 1960 real and personal property taxes paid by it exceeded $280,000.00 and it paid more than $73,000.00 in business and utility taxes to the City of Bellingham. The Company is the largest single employer to its knowledge in the City of Bellingham and in all of Whatcom County. Both the City of Bellingham and Whatcom County are currently designated by the U. S. Department of Labor as areas of substantial labor surplus.

3. The Company's mill was completely modernized in 1937. On October 4th of that year, the State Director of Health and the State Director of Fisheries wrote to the Company approving its request for permission to discharge waste from its mill into Puget Sound, and such approval reserved the right to order changes in disposal methods if subsequent investigation disclosed said wastes were deleterious to public health, fish or shell fish life. Subsequently, by letter dated November 9, 1940, authority to increase its operating capacity was given to the Company by the Director of Fisheries and the Director of Health, which authority was also subject to the condition that if the Department of Fisheries or the Department of Health should find that the discharge of effluents from the mill was deleterious or injurious to public health or fish or shell fish life, the effluents would have to be corrected within a period of one year from the date of notice to make such correction. Both of said approvals were given pursuant to RRS §5734, §1, Chap. 299, Laws of 1927. No orders for changes in the methods of discharge or alterations of quality or amounts of effluents were ever given to or received by the Company pursuant to either of the above-mentioned approvals or the above-referenced act.

4. On June 6, 1956, Temporary Permit No. T 68 was issued to the Company by the Pollution Control Commission pursuant to the Pollution Control Act of 1945, as amended. By letter dated June 10, 1957 the Commission extended said permit for a period of two years and stated it recognized the merit of the Company's existing and proposed pollution abatement program. The action which the Company took to comply with that permit is set forth in its letter and enclosures to the Commission dated September 13, 1960 which by this reference is made a part hereof as though fully set forth herein.

5. Prior to 1945 the Company embarked on an extensive by-products program on which it has since expended several million dollars for intensive research and installing of plant and equipment for the extraction of spent sulphite cooking liquor solids from its waste liquors. Such solids are used in the production of the by-products manufactured and sold by the Company. The Company's by-products facilities currently achieve removal of very substantial amounts of solids from its waste sulphite liquors which formerly were discharged as wastes. These by-products are used in the adhesive, cement, tannin, vanillan production, fertilizer and oil drilling industries and their production has created additional employment and resulted in a more complete utilization of the forest raw materials consumed in the Company's pulp operation. The Company is continuing this research, looking toward enlargement of its production of by-products.

6. The Company estimated it would be forced to expend a sum in excess of $10,000,000.00 to convert to the M.G.O. or other burning process, which would accomplish the results required by the permit. This is not only an unnecessary costly

investment, but it would eliminate considerable employment and would necessitate abandonment of by-products which are on the increase annually and could eventually develop employment equal to that of pulp production. These drastic changes together with the requirement for the expenditure of such sum is unjustified and unreasonable because:

(a) Permit T 401 by its terms expires November 24, 1963. Prior to such date, to attempt to comply with the permit the Company must expend more than $10,000,000.00 and abandon its by-products all with no reasonable certainty that after such expenditures it will be permitted to operate because there are no statutory or administrative standards on the basis of which the Company can estimate or predict whether its discharges after such reconstruction would or would not "unduly pollute" the waters of the State. In effect, Permit T 401 demands that vast sums be spent to accomplish an undefined result.

(b) There is no scientific or engineering data which establishes that the results required by permit T 401 would materially improve the qualities or properties of the waters into which the Company's effluents are discharged or materially benefit such waters or any user thereof.

(c) Since before 1940 the Company has conducted exhaustive surveys and research activities, both through its own staff, independent biologists, and scientists on the staff of the University of Washington with respect to the effect of the discharge of its effluents on the waters of Bellingham Bay and north Puget Sound. These studies have not disclosed any evidence of deleterious effects upon public health, industries, occupations or uses of the waters into which the Company's effluents are dispersed, and there is presently no competent engineering or scientific data known to the Company which establishes that the wastes presently discharged by it are injurious to any occupation, industry or use of its receiving waters.

(d) Permit T 401 in requiring such action violates and completely departs from the policy of the Legislature in RCW 90.48.010 which establishes the principles of multiple use of waters including their utilization as receiving waters for industrial wastes.

(e) Permit T 401 violates and contravenes the policy established and announced by the Pollution Control Commission itself at a public hearing held March 12, 1958 in Bellingham to which all persons interested in the use of the salt waters of northern Puget Sound were invited to attend by public notice issued by the Commission. Said notice stated in part:

> "The Pollution Control Commission recognizes that the salt waters of northern Puget Sound are utilized for a number of useful purposes and that there is a need to establish receiving water quality criteria which are based on the uses and the resource values of these waters.
>
> The following information is needed so as to enable the Commission to initiate a program to maintain suitable conditions of water quality so the maximum and sustained resource benefits may be derived."

Among the many uses specified and recognized by the Commission in said notice was waste assimilation and dispersion.

7. The Company's present effluents and discharges do not unduly pollute the waters of the state in violation of the public policy declared in RCW 90.48.010 and therefore the requirements which permit T 401 imposes upon the Company are unnecessary and unreasonable.

8. The conditions imposed by permit T 401 would require expenditures by the Company of such great and unreasonable sums that such conditions constitute a public taking or damaging of the Company's property without just compensation having been paid to the Company, in violation of Article I, Section 16, as amended, of the Washington Constitution.

9. The conditions imposed by said permit exceed the police power of the State and the authority of the Commission because they are not necessary to protect or maintain the public health, peace or welfare, and will require the abandonment of substantial portions of the Company's lawfully operated manufacturing activities and major portions of its physical manufacturing plant at great and unreasonable costs to it.

10. The Commission has exceeded its authority by specifying the conditions set forth in permit T 401 because they are unnecessary to avoid undue pollution of the waters within a reasonable distance from the Company's outfalls.

11. The provisions of Section 3, Chapter 71, Laws of 1955 which permit the Commission to specify conditions necessary to avoid undue pollution constitute an unlawful attempt by the Legislature to delegate legislative power without prescribing sufficient legislative standards for the guidance of the Commission and the conditions specified in permit T 401 are consequently unlawful and void and are in violation of Article II, Section 1, as amended, of the Washington Constitution.

12. The Commission has failed to set standards as to what qualities or properties of water constitute a polluted condition, particularly in Bellingham Bay, as directed by Section 13, Chapter 216, Laws of 1945. No legislative or administrative standards have been adopted or promulgated defining and establishing

what constitutes undue pollution. The Commission has therefore acted arbitrarily and capriciously in specifying the conditions included in said permit, and in finding that the discharge proposed in the Company's application would unduly pollute the waters of the State.

13. Pursuant to Article XXI of the Washington Constitution, the Company's use of the waters of Puget Sound for dispersion of waste from its manufacturing activities is a public use which permit T 401 would unlawfully destroy and restrict for purposes of benefiting private persons and private uses.

14. The conditions imposed by permit T 401 deprive the Company without due process of law of property rights in and to its tidelands and abutting uplands at the site of its pulp mill in violation of Article I, Section 3, Washington Constitution and Amendment 14 to the United States Constitution.

15. On April 8, 1959, the Company mailed an application for a permanent waste disposal permit to the Commission. By letter dated April 14, 1959 the Commission acknowledged receipt of the Company's application and advised that the permit under which the Company was then operating would be given consideration at a future meeting of which the Company would be notified and that "In the interim and in accordance with Section 30 of RCW 90.48 (presumably RCW 90.48.200) it is deemed that Puget Sound Pulp and Timber Company is operating under a Temporary waste discharge permit." The April 8, 1959 application was supplemented with a letter and enclosures to the Commission dated September 13, 1960. No action on said application was taken by the Commission until May 23, 1961 when it determined that disposal of waste as proposed in the application would unduly pollute the waters of the State and thereby denied said application.

16. No increase in the levels of sulphite waste concentrations in any waters of the state is contemplated by said application for a permanent permit. The Company's existing facilities are adequate to prevent undue pollution of the receiving waters and to fully protect all other uses from process wastes.

17. The Company has fully satisfied and complied with all requirements and standards established by the Commission and by statute for issuance of a permit to the Company for disposal of its wastes and by right is entitled to have issued to it a permanent permit containing conditions as applied for in said application.

18. No rule or regulation of the Commission or any other information or data supplied by the Commission affords adequate information to advise the Company of the basis for the conditions required in permit T 401 or the denial of its application for a permanent permit. In order to adequately prepare for the hearing herein requested, the Company respectfully requests that the Commission furnish to it or make available for examination by it or its representatives the below described information and data:

(a) Records, studies or other data possessed by or known to the Commission which delineate or pertain to the geographic areas and amounts of any present deposits of settleable solids of concern to the Commission to which the Company's operations contribute, the extent of such contribution and the harm done thereby to other water uses.

(b) All studies of and reports relating to the waters of Bellingham Bay which the Commission has taken into consideration and upon which it relied in making its finding that the discharge of the waste material as proposed in the Company's application would otherwise unduly pollute the waters of the State of Washington.

(c) The technical bulletins, matters of technical knowledge, and matters of notorious fact and business custom contained in the public records of the Commission of which it took official notice in fixing the conditions of permit T 401.

(d) All definitions and determinations of the qualities and properties of the waters of Bellingham Bay which constitute or amount to undue pollution thereof and all data, records and studies pertaining to the qualities and properties of such waters which have been relied upon by the Commission in issuing permit T 401 and in requiring removal of all solids from the Company's effluents.

19. The Company hereby reserves the right to amend or enlarge this application to include or add any statement of a pertinent fact or contention which may have been omitted herefrom.

WHEREFORE, the Company is aggrieved because of the specification of the conditions included in permit T 401 issued by the Commission and because of the Commission's order denying its application for a permanent permit, and respectfully requests that the Commission:

(1) Grant to the Company a hearing with respect to permit T 401 and the denial of the Company's application for a permanent permit.

(2) Furnish to the Company prior to such hearing the information and data requested by it and required to enable

it to make an adequate and proper presentation to the Commission.

(3) To allow sufficient time to the Company to fully and adequately prepare for such hearing after it receives the data and information requested.

(4) Following such hearing, issue to the Company a permanent permit to discharge industrial wastes into the waters of Puget Sound in accordance with the conditions of its application hereinabove described.

Respectfully submitted,

PUGET SOUND PULP & TIMBER CO.

By
Chairman of the Board of Directors

24<

APPENDIX B/10
BILL'S [illegible]

STATE OF WASHINGTON)
) ss
COUNTY OF KING   )

ROBERT H. EVANS, being first duly sworn, on oath deposes and says: That he is an officer, namely the Chairman of the Board of Directors, of Puget Sound Pulp & Timber Co. and, being duly authorized, makes this verification on its behalf; that he has read the foregoing Application for Hearing, knows the contents thereof and believes the same to be true.

Robert H Evans

SUBSCRIBED AND SWORN TO before me this 9th day of June, 1961.

Notary Public in and for the State of Washington, residing at Seattle.

RECEIVED
JUN 9 1961
POLLUTION CONTROL COMMISSION
FILE

APPENDIX B11
BILL'S RECORDING SERVICE

BEFORE THE

POLLUTION CONTROL COMMISSION OF THE STATE OF WASHINGTON

In the matter of Temporary Waste Disposal Permit No. T402 issued to Rayonier Incorporated, Port Angeles Division	)))))))	PETITION OF RAYONIER INCORPORATED PROTESTING CONDITIONS SPECIFIED IN TEMPORARY WASTE DISPOSAL PERMIT NO. T402, ISSUED MAY 19, 1961 TO PETITIONER'S PORT ANGELES DIVISION, AND SEEKING MODIFICATION OR REVISION OF SUCH PERMIT; AND APPLICATION FOR HEARING

Rayonier Incorporated hereby respectfully petitions the Pollution Control Commission of the State of Washington and submits application for hearing, as follows:

I.

Rayonier Incorporated is a Delaware corporation qualified and licensed to do business within the State of Washington and has paid all fees due the State of Washington.

II.

Throughout the period since 1920 (except for occasional periods of shutdown for repairs or other business reasons) Rayonier Incorporated or its predecessor corporation has owned and operated and Rayonier now owns and operates, a pulp mill in the vicinity of Port Angeles, Washington. Rayonier Incorporated and its predecessor, Olympic Forest Products Corporation,

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BILL'S RECORDING SERVICE

are hereinafter referred to as Rayonier.

III.

The mill processes wood that is obtained from timber grown in the State of Washington. The wood is processed to produce pulp for sale to others who process it into various commercial and industrial products including rayon, acetate, cellophane, photographic film, sponges, luggage, industrial hose, automotive equipment, radio and TV cases, clothing, upholstery, rugs, carpeting, filters, absorbents, food packaging materials, explosives and a variety of other products.

IV.

The mill is an important asset and represents a major capital investment of Rayonier. Its operations constitute an important and valuable part of the industry of the State of Washington. It has a manufacturing capacity of some 400 tons of sulphite pulp daily. It affords direct employment to over 465 persons. The annual payroll relating to the operation of the mill is over $3,000,000. Many residents of Port Angeles and vicinity other than employees of Rayonier and many other businesses in that community either are economically benefited by, or are in major part dependent on, the mill's operation. The mill has operated in its present location for 32 years and its operation constitutes the second largest industrial enterprise in the Port Angeles area. Annually, Rayonier purchases within the State of Washington substantial amounts of supplies, materials, equipment, logs, pulp wood and chips. It annually pays substantial amounts for services within the state including truck rentals, scaling, dumping, rafting, towing and rail freight. It pays annual property and excise taxes to the State of Washington in excess of $1,500,000. Approximately 35% of each of these amounts is identified with the operation of the Port Angeles mill.

V.

The Port Angeles mill is what is known as a sulphite mill and the nature of the sulphite pulp manufacturing process is such that very substantial volumes of fresh water necessarily must be used in the pulping process and the washing of the manufactured product. The resulting waste, consisting of the water, the residual chemicals from the manufacturing process and the non-cellulose ingredients of the wood, amounts to over 35,000,000 gallons per day.

VI.

The waste discharge permit that seeks to impose the conditions to which this petition and application for hearing is addressed is Permit T402. It was issued to the Port Angeles Division of Rayonier May 19, 1961. While it permits the mill a daily discharge of waste to Port Angeles Harbor of 35,300,000 gallons, it contains conditions that are so oppressive, arbitrary and unreasonable and so lacking in adequate factual or legal basis as virtually to be confiscatory in character. Rayonier "feels aggrieved" by such conditions, within the meaning of these words as used in the statutes hereinafter mentioned, and hereby applies for a hearing in accordance with RCW 90.48.130. A copy of Permit T402 is attached hereto as Exhibit A and by this reference made a part hereof. The conditions of the permit are treated in greater particularity later herein.

VII.

The permit purports to be issued by the Commission "in accordance with Chapter 71, Laws of 1955." (RCW 90.48.160 and following sections). It is Rayonier's contention that the conditions of the permit do not conform to the spirit and intent of this law and are not "in accordance" with Chapter 71, Laws of 1955. This law required for the first time that permits be obtained by anyone conducting a commercial or industrial operation who disposed of waste material into state waters. The law's title shows its purpose to be that of regulating the discharge of waste material into such waters. It is made mandatory upon the Commission (RCW 90.48.180) to issue a permit unless the Commission "finds that the disposal

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BILL'S RECORDING SERVICE

of waste material * * * will unduly pollute the waters of the state in violation of the public policy declared in RCW 90.-48.010". The Commission is empowered to specify only those permit conditions that are necessary to avoid the undue pollution that is in violation of RCW 90.48.010. The language of this section of the law follows:

> "It is the public policy of the state to maintain the highest possible standards to insure the purity of all waters of the state consistent with public health and public enjoyment thereof, the propagation and protection of wild life, birds, game, fish and other aquatic life, and the industrial development of the state, and to that end require the use of all known available and reasonable methods by industries and others to prevent and control the pollution of the waters of the state. [1945 c 216 §1; Rem.Supp. 1945 §10964a.]" (underlining added)

VIII.

Disposition of substantial quantities of liquid waste is a necessary part of the pulp manufacturing operation. It is clearly apparent that the statutes identified in VII do not empower the Commission with sweeping and unlimited authority to grant or withhold waste disposal permits at will, or to impose by administrative fiat whatever permit conditions the members of the Commission from time to time may desire to impose, depending on the personal and varying viewpoint or philosophy of those involved. On the contrary, the Commission's authority concerning the issuance of permits and the conditions to be included therein has been carefully circumscribed. The following points are significant in this regard:

(a) An administrative tribunal such as the Commission has only the authority granted to it by the pertinent statutes and its valid actions cannot exceed such authority.

(b) The Commission has no discretionary power to refrain from issuing a permit except in an instance where the Commission has first made a finding that the proposed disposal will not only pollute the waters of the state in violation of the public policy declared in RCW 90.48.010, but will unduly pollute the waters in this regard (RCW 90.48.180). Such finding obviously is required to be based on substantial and provable fact and cannot validly be a mere perfunctory and unsupported action on the part of the Commission.

(c) Similarly, the Commission has no power to specify conditions in such a permit except such conditions as are necessary to avoid the undue pollution, mentioned in (b), that is in violation of the public policy declared in RCW 90.48.010.

(d) RCW 90.48.010, under recognized rules of statutory construction, must be read and construed in its entirety. So construed, this section imposes definite limitations on what the Commission validly may or may not "find". The "highest possible standards" mentioned in RCW 90.48.010, when measured against the other language of the section, must be construed to mean standards that will insure the purity of state waters to the extent (and not beyond such extent, to the detriment of anyone) that such standards are consistent with public health and public enjoyment thereof, the propagation and protection of wild life, birds, game, fish and other aquatic life, and the industrial development of the state. In other words the stated policy requires standards that represent a reasonable and equitable balancing of these interests, from the standpoint of pollution regulation and control.

(e) The area of proper Commission action in regard to such policy is further limited in that the methods of control, consistent with such policy, must be "reasonable" (RCW 90.48.010). The certain legislative intent here is to limit the authority of the Commission so as to require that the burden and cost identified with any permit condition be weighed, among other things, against the probable benefits to be obtained and that all other factors bearing on the reasonableness of such conditions be considered and imposed as limitations upon the scope of authorized administrative action.

(f) In summary, permit conditions are properly within the authority of the Commission if, and only if, on the basis of substantial and provable fact (i) they are necessary to avoid a violation of RCW 90.48.010; (ii) they are necessary to avoid not only the "pollution" mentioned in that section but are necessary to avoid "undue pollution" (see RCW 90.48.180); and (iii) they are in all respects reasonable.

IX.

The selection of a desirable and profitable site for a pulp mill is a difficult and critical matter, and an investment in such a site and in the plant and equipment on such site involves a very major decision in each instance. The availability of sufficient timber to supply the basic raw product on an economical basis and the availability of very great volumes of water for the necessary manufacturing and washing processes are requisite. But, in addition, the value of a site at which these resources are available is identified in large measure with the matter of whether the location affords available means of disposing of the necessary waste water and waste material with a minimum of capital investment and expense for construction and maintenance of plant and equipment devoted to this purpose. Proximity of such a site to tidal waters of great volume and receiving capacity, and the use of such tidal waters for waste disposal bears importantly on the value of the site and the profitability of the operation of a pulp mill thereon.

X.

The site of Rayonier's mill at Port Angeles was selected with great care and after extensive study of the various factors bearing on the advantageous location of a mill of this type. One of the major considerations in selecting the mill's location was that the site is adjacent to the vast sea water area known as the Strait of Juan de Fuca, a body of water of great depth, volume and tidal current. This body of water is bordered by the State of Washington on the south and by Vancouver Island, British Columbia, on the north. It is several miles wide, has depths of over 600 feet and to the west connects directly to the Pacific Ocean. The waste material contributed to these waters by the Port Angeles mill is so small, on a comparative basis, as to be properly characterized as infinitesimal.

XI.

The mill's location and construction in 1928 was designed to utilize the waters described in X for the disposal of the waste water and material from this mill and this method of disposition has been used since that time, subject to the matters to which reference is made in XII, below.

XII.

Rayonier asserts that disposition of the waste material from the Port Angeles mill into the waters described in X, in the manner that it has disposed of such material since construction of the mill, causes no undue pollution and constitutes a proper, reasonable, and efficient method of disposal that is strictly in full compliance with the spirit and intent of the pertinent statutes on water pollution control. Rayonier has no knowledge or information of any valid evidence that such disposal of waste material has any substantial adverse effect upon the various beneficial uses recognized by the Commission as established in the waters of the area: migration, growing and commercial harvesting of fish; sport fishing; boating; shipping and marine transportation; log rafting and sorting; and dilution and dispersion of various industrial and municipal wastes. Disposal of such waste material in the manner described is in accordance with the traditional and lawful use of tidal waters for this purpose; and such disposal bears no substantial relation to the public health, safety, or general welfare and no basis exists for the exercise of any police power on the part of the State or any of its agencies to compel Rayonier, without compensation, to change its method of operation at the Port Angeles mill and suffer the burden and cost hereinafter mentioned.

XIII.

Despite the matters stated in the preceding paragraph, Rayonier already has gone to great expense in an effort to cooperate with the Commission and the members of its staff and defer to their desires and requests regarding waste disposal at the Port Angeles mill. At all times members and representatives of the Commission have had complete access to the mill and to the waters in the general area, have had full and unrestricted privilege of inspection and sampling, and continuously have been invited to bring to the attention of the mill's management any and all information, suggestions and requests of the Commission in regard to the operation of the mill. In response to its application for a temporary permit, after the "permit act" of 1955 became effective, temporary permit (No. T 60) was issued to Rayonier's Port Angeles Division and this temporary permit contained various conditions relating to waste disposal. Most of these conditions were met by Rayonier at substantial expense. A combination settling basin and filtering system to clarify the effluent from the two hydraulic barkers was installed at an initial cost in excess of $40,000 and at very substantial additional cost for subsequent modifications. Automatic flow recording and sampling equipment was installed on all sewers discharging process waste water. A plot plan, showing the location of sewers and indicating sources and volumes of processing waste waters, was furnished to the Commission. Monthly reports containing all data requested by the Commission were and are being furnished to the Commission. Equipment was installed to remove knotter, flat screen and centricleaner rejects from mill effluents prior to the discharge thereof.

In accordance with an amended condition of this first temporary permit, equipment was installed to limit the losses of fibers, as suspended combustible materials, to 50 pounds per ton of the mill's product. This latter equipment was installed at a cost in excess of $420,000. Thus the steps already taken by Rayonier at the Port Angeles mill in accordance with Commission requests and conditions of the first temporary permit have cost in excess of $500,000 and in addition have imposed on the Port Angeles mill very substantial and continuing increased maintenance and operating costs.

XIV.

The first temporary permit (No. T-60) contained only two conditions with which Rayonier has not complied. The first of these conditions would have required the mill to install, at great additional expense, a submerged outfall "in such a manner as to minimize unsightly conditions in the vicinity". Rayonier installed containing devices which eliminated the spread of unsightly foam caused by the mill effluent. Further, after study there appeared to be valid reasons for concluding that a submerged outfall would increase rather than minimize any unsightly condition in the vicinity. These reasons were submitted to the Commission and no further response from the Commission was received by Rayonier in this regard. The second of these conditions was as follows:

> "Within one year from the date of this permit, a firm proposal shall be made to the Commission indicating the method by which the BOD and solids characteristics of spent cooking liquors, including major washings, will be utilized, recovered or treated. This proposal shall indicate the time necessary to complete the project. During this year, quarterly reports shall be made to this Commission as to the progress of the preparation of this proposal."

The reasons against compliance with such latter condition are those stated herein in protest of condition 3 of temporary permit No. T402, to which permit this petition is addressed.

XV.

As previously stated the permit conditions to which this petition is addressed are those set forth in permit T402. The objectionable conditions in this permit are those numbered 2, 3, 4, 5 and 7. In support of its position that the enumerated conditions are so oppressive, arbitrary and unreasonable and so lacking in adequate factual or legal basis as virtually to be confiscatory in character, Rayonier submits the following estimates on the costs that would be involved if such conditions were to be met:

(a) Condition 2 requires installation of facilities "for removal of settleable solids from all mill effluents" with further provision that "disposal of these solids shall be other than to waters of the State". The capital investment necessary to do this would amount to at least $4,000,000. The annual additional cost of operation of the Port Angeles mill identified with the installation and maintenance of such equipment would amount to at least $350,000.

(b) Condition 3 requires installation of facilities for the removal of at least 85% of "digester cooking liquor total solids", with further provision that "disposal of these solids shall be other than to waters of the State". The capital investment necessary to do this would amount to at least $6,500,000. An annual additional cost of operation of the Port Angeles mill identified with the installation and maintenance of such equipment would amount to at least $465,000.

(c) Thus, if these conditions of permit T402 were allowed to stand as valid, the Port Angeles mill of Rayonier could not legally be operated beyond the expiration date of the permit unless some $10,500,000 were spent by Rayonier for capital investment otherwise not required, and the cost of operation of the Port Angeles mill and production of the mill's product would be increased indefinitely by $815,000 or more per year.

XVI.

In further reference to the conditions of permit T402: such conditions vary appreciably from the conditions of the temporary permit (No. T60) previously issued to the Port Angeles mill. This is true despite the fact that the Commission's rules, according to available information, provide in effect that the purpose of a temporary permit is to state the conditions necessary in order to entitle an applicant to a permanent permit. For example, the only reference in the preceding temporary permit to the removal of settleable solids related to maximum amounts of suspended combustible solids in the hydraulic log barker effluents and to a maximum amount of fibers, as suspended combustible materials, in other waste effluents. As previously stated, Rayonier at great expense took steps to comply with these conditions. However, Permit T402 now would require installation of facilities for the removal of settleable solids that would represent the new and further burden and cost to Rayonier in the amounts stated in XV (a). As to the conditions of permit T402 numbered 4, 5 and 7: condition 4 requires engineering plans for the facilities required by conditions 2 and 3 and the objections to such facilities apply equally to condition 4; condition 5 requires reporting in such detail as to be unreasonably and unnecessarily burdensome; condition 7 requires that the mill's waste effluents be discharged through a continuously submerged outfall and the basis of the objections to such condition are stated in XIV.

XVII.

Rayonier owns two other pulp mills in the State of Washington, one located on Grays Harbor, in Grays Harbor County, and the other on Oakland Bay, in Mason County. In the interests of minimizing waste disposal in these more confined water areas Rayonier has spent or is in the process of spending upwards of $10,000,000 and it is submitted that this is a factor properly to be considered in regarding the conditions now sought to be imposed on the Port Angeles mill as wholly unreasonable, considering its location and the matters mentioned in IX, X, XI and XII.

XVIII.

Use of the waters described in X by the mill for dispersion of waste from its manufacturing activities is designated as a recognized public use by Article XXI of the Constitution of the State of Washington, and conditions 2, 3 and 4 of permit T402, if allowed to stand, would have the effect of destroying and restricting Rayonier's constitutional right in this regard for purposes of benefiting private persons and private uses.

XIX.

In reference to the constitutionality of the statutes of the State of Washington under which permit T402 purportedly is issued, including Chapter 71 of the Laws of 1955 and Chapter 216 of the Laws of 1945: if these statutes are legally and properly to be construed as authorizing the Commission to impose upon Rayonier conditions such as conditions 2, 3 and 4, of Permit T402, the statutes are unconstitutional, null, void and of no effect in that they:

(a) constitute an unlawful attempted delegation of legislative power without prescribing adequate standards for the guidance of the Commission and, accordingly, are violative of section 1 of Article II of the Constitution of the State of Washington and of the Fourteenth Amendment of the Constitution of the United States; and

(b) are violative of section 3 of Article I, as amended, of the Constitution of the State of Washington, and of the due process clause, section 1 of the Fourteenth Amendment of the Constitution of the United States; and

(c) would constitute a damaging of Rayonier's property for public or private use without due process and without just compensation having first been paid in violation of section 16, Article I, as amended, of the Constitution of the State of Washington, and the Fifth Amendment of the Constitution of the United States.

XX.

The conditions of permit T402 to which objection is made herein are unreasonable, arbitrary, beyond the statutory authority of the Commission, and are without any fair and substantial relation to the general object and the legislative purpose of the statutes heretofore mentioned. The Commission has not determined what qualities and properties of water shall indicate a polluted condition of the waters described in X in any respect, as required pursuant to the provisions of RCW 90.-48.070. Accordingly, it could not have made any legal "finding" prior to the issuance of permit T402, to support the issuance thereof. There is no competent evidence of which Rayonier has any knowledge that the present discharge of waste material from the Port Angeles mill is deleterious to other or competing uses in that water area. There has been no showing whatever that any installation pursuant to the objectionable permit conditions would materially benefit other uses of the water. The objectionable conditions of the permit are discriminatory to Rayonier, as well as to other members of the pulp and paper industry, as distinguished from other users of the waters of the state. Requirements such as these discourage and impede the industrial development in the state, contrary to the expressed statutory policy.

XXI.

Neither temporary permit T402 or any other data or information furnished by the Commission affords sufficient information to permit Rayonier to be advised of the basis for the Commission's position in attempting to impose the conditions set forth in the temporary permit or to prepare for the hearing requested herein. It is essential that such information and data be furnished to Rayonier in order that it be permitted to make the full and adequate presentation at such hearing to which it is entitled. It therefore is requested that the Commission furnish to Rayonier in written form, or specify and make available for examination by representatives of Rayonier, the following data and information:

(a) All data, information, studies and reports that are contended by the Commission to afford basis for requiring the removal of all suspended solids from the effluent of the Port Angeles mill;

(b) All data, information, studies and reports that are contended by the Commission to afford basis for requiring the removal of at least 85% of digester cooking liquor total solids from the effluent of the Port Angeles mill;

(c) All data, information, studies and reports that are contended by the Commission to afford basis for requiring that waste effluents from the Port Angeles mill be discharged through a continuously submerged outfall in such a manner as described in the permit;

(d) All data, information, studies and reports that are contended by the Commission to afford basis for the finding in the Commission's resolution of May 23, 1961 that the conditions in permit T402 are necessary to effectuate the policy of RCW 90.-48.010;

(e) All data, information, studies and reports that are contended by the Commission to afford basis for the finding in the Commission's resolution of May 23, 1961 that the disposal of waste material as proposed in Rayonier's application would, but for such conditions, unduly pollute the waters of the State of Washington;

(f) The water qualities that have been determined by the Commission to amount to undue pollution and all data, information, studies and reports that are contended by the Commission to afford basis for such determination; or, in the alternative, information that the Commission has made no such determination.

WHEREFORE, Rayonier feels aggrieved within the meaning of that term in RCW 90.48.130, for the reasons heretofore stated, and applies for a hearing in accordance with that section and respectfully requests the Commission:

(a) To furnish to Rayonier preliminary to such hearing the data and information that is necessary in order to permit Rayonier to make adequate and proper presentation at such hearing as requested in XXI;

(b) To permit Rayonier adequate time for preparation prior to such hearing, after receipt of such information;

(c) Following such hearing, to grant to Rayonier a permanent permit on reasonable and appropriate terms and conditions and omitting therefrom conditions such as those numbered 2, 3, 4, 5 and 7 in permit T402.

(d) To eliminate conditions numbered 2, 3, 4, 5 and 7 from permit T402.

Respectfully submitted,

RAYONIER INCORPORATED
PORT ANGELES DIVISION

By John B. Bray
Resident Manager

APPENDIX C22
BILL'S RECORDING SERVICE

STATE OF WASHINGTON)
SS
COUNTY OF KING)

JOHN B. GRAY, being first duly sworn, on oath deposes and says that he is resident manager of the Port Angeles Division of Rayonier Incorporated, petitioner and applicant herein, that he has read the foregoing Petition of Rayonier Incorporated Protesting Conditions Specified in Temporary Waste Disposal Permit No. T402, Issued May 19, 1961 to Petitioner's Port Angeles Division, and Seeking Modification or Revision of Such Permit; and Application for Hearing, knows the contents thereof, and believes the same to be true.

John B Gray

Subscribed and sworn to before me this 9th day of June, 1961.

Notary Public in and for the State
of Washington, residing at Seattle

S. O. No. 8374—5-55—2M 41901

STATE OF WASHINGTON
POLLUTION CONTROL COMMISSION
OLYMPIA, WASHINGTON

Permit T 402

In accordance with Chapter 71, Laws of 1955,
A WASTE DISCHARGE PERMIT is issued to:

Date of issue May 19, 1961

Date of expiration Nov. 24, 1963

Rayonier, Incorporated
Port Angeles Division
Port Angeles, Washington

Waste not to exceed 35,300,000 gallons per day may be discharged to

Port Angeles Harbor subject to the following conditions:

1. The word "waste" in the above statement refers to the total volume of cooling and contaminated waters to be discharged.

2. Facilities for the removal of settleable solids from all mill effluents are to be installed and in use by the expiration date of this permit. Disposal of these solids shall be other than to waters of the State.

3. Facilities for the removal of 85% (minimum) of the digester cocking liquor total solids are to be installed and in use by the expiration date of this permit. Disposal of these solids shall be other than to waters of the State.

4. Engineering plans for the above-mentioned facilities (permit conditions 2 and 3) accompanied by pertinent supporting data are to be submitted to this Commission for review and approval by March 1, 1962.

5. A report of effluent characteristics is to be submitted monthly, based upon the analysis of composited effluent samples. This report shall contain the following information for each day of operation:

    1. Pulp production in tons.
    2. Waste flow in gallons (for each sewer outfall).
    3. Suspended combustible solids losses in pounds (for each sewer outfall).
    4. Total solids losses in pounds (for each sewer outfall).

TEMPORARY

6. The normal inplant slime control program and procedures, in effect or as revised, shall be reported in detail giving chemical descriptions, amounts, and methods, and points of application for each slimeicide chemical used. Deviations from the above programs and procedures shall be noted on the monthly effluent report.

This permit does not allow the discharge of wastes other than those mentioned herein. A new application shall be submitted whenever a change in the waste to be discharged is anticipated.

This permit is subject to termination if the Commission finds: (1) That it was procured by misrepresentation of any material fact or by lack of full disclosure in the application, (2) That there has been a violation of the conditions thereof, (3) That a material change in quantity or type of waste disposal exists.

In the event that a material change in the conditions of the state waters utilized creates a dangerous degree of pollution, the Commission may specify additional conditions to this permit.

Signed

Director, Pollution Control Commission

This permit does not in any way release the permittee from liability for damage to persons or property caused by or resulting from the discharge of waste.

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BILL'S RECORDING SERVICE

Rayonier, Inc.
Port Angeles Division
Port Angeles, Washington

Permit T 402

May 19, 1961
Nov. 24, 1963

7. The waste effluents shall be discharged through a continuously submerged outfall in such a manner as to minimize unsightly conditions in the vicinity.

8. Sanitary sewage is to be treated in continuously maintained sewage treatment facilities or connection made to the municipal sewer system by the expiration date of this permit.

9. This permit is conditioned upon the continuous and efficient maintenance and operation of all existing waste recovery and pollution abatement facilities operated by or under the control of permittee.

   In the event of an emergency or condition beyond the control of the permittee, which prevents continuous operation of existing waste recovery and pollution abatement facilities, permittee shall:

   1. Immediately notify this Commission;
   2. Provide the Commission access to its facilities and all pertinent information as to cause of any interruption in operation of such waste recovery and pollution abatement facilities; and
   3. Submit such other information as the Commission may request from time to time thereafter.

10. The conditions under which this temporary permit has been extended are prescribed pursuant to Chapter 90.48 of the Revised Code of Washington and Section IV of Chapter 04.250 of the Rules of Practice and Procedure before the Pollution Control Commission.

11. In fixing the conditions under which this temporary permit has been extended the Commission has taken official notice of the matters of technical knowledge, notorious fact and business custom contained in its public records, "technical bulletins", and reports of permittees engaged in industrial operations in the affected areas.

12. Any alternative method for the removal and disposal of wastes which are equally effective to those required by conditions 2 and 3 of this permit will be considered if submitted prior to January 1, 1962.

Director, Pollution Control Commission

APPENDIX C25
BILL'S RECORDING SERVICE

BEFORE THE WASHINGTON POLLUTION CONTROL COMMISSION

IN THE MATTER OF THE PETITION
OF SCOTT PAPER COMPANY
FOR ISSUANCE OF A LAWFUL WASTE
DISPOSAL PERMIT, OR IN LIEU
THEREOF FOR AMENDMENT OF
TEMPORARY PERMIT T-403)

PETITION

I.

A. Petitioner is Scott Paper Company, a Pennsylvania corporation authorized to do business in the State of Washington, with its Washington address and place of business at Everett, Washington.

B. Petitioner seeks issuance of a reasonable and lawful permit in substitution for Washington Pollution Control Commission's Temporary Waste Discharge Permit T-403 bearing date of May 19, 1961 (which was first received by Petitioner on May 25, 1961), or in lieu thereof the amendment of said temporary Permit T-403 to permit continued reasonable use by Petitioner of the waters of Port Gardner for the disposal of waste from its Everett pulp mill.

C. Petitioner requests: That a hearing upon this petition be held before the above entitled Commission; that adequate time be granted Petitioner for preparation therefor in accordance with and for the reasons hereafter set forth; and that, pending final determination of this cause, a stay be granted permitting Petitioner's continuance of waste disposal from its Everett pulp mill into Port Gardner by present methods.

II.

A. Petitioner alleges that the conditions contained in Permit T-403 were prematurely issued and were promulgated contrary to law

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and impose arbitrary and capricious requirements upon Petitioner not authorized by law, to-wit:

1. No standards have been established which warrant the requirements imposed by said conditions;

2. No notice has been given of any hearings whereat any such standards were to be considered nor whereat said conditions were to be considered;

3. No hearings have been held whereat any such standards or conditions were considered;

4. No evidence or matters of official notice has been taken of any fact or other matter bearing on any such standards or on said conditions which has been disclosed or identified to Petitioner or the public, or which has been subject to examination or cross examination, rebuttal or opportunity to check accuracy, by Petitioner or the public;

5. No findings of fact or conclusions of law bearing on any such standards or on said conditions have been made which were founded on any evidence or matter of official knowledge so disclosed to, and subject to examination and rebuttal by, Petitioner or the public;

6. The Commission imposes conditions in the issuance of its Temporary Permit T-403 which, if accepted by Petitioner, would require unreasonable and confiscatory expenditures by Petitioner within a period of two and one-half ($2\frac{1}{2}$) years, as hereinafter set forth, but contains no provision that after said expenditures are so made Petitioner will be per-

mitted to continue disposal of waste in accordance with the terms of said Permit, or at all;

7. The Commission's failure to adopt reasonable standards for use of the waters of the State by all lawful users thereof grants to other citizens, classes of citizens and corporations, privileges and immunities which are not available upon the same terms to Petitioner and is in violation of Article I, Section 12, of the Washington State Constitution and the Fourthteenth Amendment of the United States Constitution;

B. Petitioner, without waiver of the foregoing but in the event the same be denied, hereby petitions amendment of Permit T-403 by eliminating therefrom conditions 2, 3 and 4, and alleges as follows:

1. Conditions 2 and 3 impose upon Petitioner in the operation of its Everett pulp mill requirements for facilities for higher standards of water purity than the Washington Water Pollution Control Act (Chapter 90.48 RCW) authorizes the Commission to require;

2. Conditions 2 and 3 impose upon Petitioner, at its Everett pulp mill, requirements for achieving methods of waste disposal which are in excess of, and which vary from, any "known, available and reasonable" methods and which the Commission is not authorized to require by said Washington Water Pollution Control Act;

3. In imposing conditions 2 and 3 upon said Everett pulp mill, the Commission fails to conform with said statute in

requiring changes of and expenditures for methods of waste disposal in a plant lawfully constructed and operated prior to the enactment and the effective date of said statute.

4. As required by the Commission, conditions 2 and 3 are in violation of Article I, Section 3, Article I, Section 16, Amendment IX and Article XXI of the Washington State Constitution and Amendment XIV of the Constitution of the United States.

5. Condition 4 is a preliminary to the requirements contained in conditions 2 and 3 and has no purpose except as a part of said conditions.

C. Petitioner, without waiver of the matters stated in II-A above, but in the event the same be denied, hereby requests the following further amendment of Permit T-403 and alleges as follows:

1. Submission of reports on a daily basis as required by condition 5 constitutes an unreasonable burden on Petitioner and monthly reports on an average basis would provide everything reasonably necessary for the objects and purposes of the Commission.

2. Petitioner's present outfalls, referred to in condition 7, provide adequate methods of waste discharge from the Everett pulp mill. Combining them, as required in said condition 7, is not reasonably necessary and would tend to defeat, or render unnecessarily costly, continued develop-

ment of good waste disposal practices and would result in less efficient disposal in receiving waters.

3. Conditions 10 and 11 are not proper parts of any permit.

4. Petitioner requests that it be supplied with copies of all matters referred to in said condition 11 of which the Commission has, or will, take official notice in the issuance of said Permit T-403 and in the hearing upon this petition, together with all other matters and studies and data on file in or under the control of the Commission relating to water conditions of Port Gardner and the actual and/or appropriate use thereof by industry and any and all other lawful users.

III.

Petitioner further alleges as follows:

A. The Everett pulp mill was originally built in 1930 on the shores of Port Gardner. The mill has been in operation ever since. In 1951 Scott Paper Company acquired the pulp mill and other assets from Soundview Pulp Company. At that time the facilities of this plant were limited to the manufacture of pulp and there were employed in its operation approximately 450 persons. This pulp was largely shipped to other parts of the United States for fabrication and distribution. Between 1953 and 1955 Petitioner constructed, at said Everett site, a paper mill where the said pulp was, and is being, fabricated and in the operation of which approximately 1200 additional persons are employed.

B. Said integrated manufacturing operation is an important part of the industrial life of the Puget Sound area. The Everett pulp and paper mill and the pulp industry, generally, contribute substantially to other business and industry in this State. They also contribute substantially to the conservation of the resources of the State of Washington by converting into pulp and paper, and other commodities, vast quantities of forest products, a large portion of which would have little or no use and be abandoned, burned or otherwise destroyed as waste. The marketing of pulp, paper and the other said commodities which are produced from said forest products provides a very substantial benefit and revenue for the people of Washington.

C. Petitioner's methods of disposing of solids (of the general type referred to in condition 2 as "settleable") from its Everett pulp mill effluent by filtering them have been improved from time to time, in keeping with the known state of applied science. Petitioner's present methods do not involve excessive use of Port Gardner waters by one class of users with substantial, or disproportionate, detriment to other lawful users. Without definitions and standards setting forth what levels of "settleable solids" removal is referred to in condition 2, Petitioner has no means of knowing what is required by said condition 2. However, Petitioner points out that costs become prohibitive in relation to effects on receiving waters when removal is at percentages higher than those now achieved at the Everett pulp mill.

D. In 1951, in the closest possible cooperation with the Washington Pollution Control Commission, and in accordance with designs approved by the Commission, Petitioner and the Weyerhaeuser

Company, at an initial cost of $654,000.00, constructed, installed and put into operation a submerged pipe line extending 3000 feet into Port Gardner. This disperses digester cooking liquors in an area where the dispersal effects of the tides, winds and currents from large rivers flowing toward the sea are at a maximum. Along the last 1000 feet, and at a depth of 300 feet and at the seaward end of the pipe line, 110 nozzles provide maximum dispersal of the digester cooking liquors as they are discharged into seaward moving currents. Virtually all of the digester cooking liquors (diluted with wash waters) of both Petitioner's and Weyerhaeuser's Everett pulp mills are now dispersed through this pipe line. In 1961 the pipe line was thoroughly inspected. It is in first class condition, functioning excellently, has many years of remaining useful life, and has been demonstrated to achieve dispersal of digester cooking liquors to such extent that there is no substantial or disproportionate detriment to other lawful users of Port Gardner.

E. Over the years, much research has been directed toward discovering methods for pulp production which would result in less waste or in waste which can be disposed of in ways which are more satisfactory, or in end products which have commercial use. The only method known to Petitioner by which it could comply with condition 3 of Permit T-403 would be by dismantling very substantial parts of the Everett pulp mill and replacing them with different and additional facilities at exorbitantly uneconomic costs in the range of $20,000,000.00. This step would be experimental; its results are uncertain and the reconstruction might have to be replaced. The whole project would have the result of unreasonably increasing the price at which Petitioner would have to sell the pulp to price levels which would prejudice its competition with domestic and foreign producers.

F. Petitioner, for many years, has been endeavoring to develop a satisfactory new method for recovery. The new Swedish "Stora" process appears to be such a method. Petitioner is making a substantial investment in and experimenting with a new plant which will come into production in Nova Scotia in 1962 using an adaptation of the "Stora" process. Petitioner will be trying out, in this new plant, methods which, if successful, might possibly be further adapted for use in Petitioner's old plant in Everett. If so, it may provide a reasonable means for substantial removal of digester cooking liquor solids being dispersed into Port Gardner. Petitioner desires the opportunity to keep the Commission fully informed of developments in this method.

G. Article XXI of the Constitution of the State of Washington provides: "The use of the waters of this state for irrigation, mining and manufacturing purposes shall be deemed a public use." (Emphasis supplied). The policy of the legislature, as declared in the Washington Pollution Control Act (Chapter 90.48 RCW) contemplates a reasonable sharing of the use of the waters of the State, having in mind industrial uses as well as protection of health and aquatic life. The statute imposes on the Commission the duty of establishing standards of purity which will accomplish this broad sharing purpose. No such standards have been established. No scientific or engineering data, to properly establish these sharing standards, has been sought; or at least presented at a hearing where Petitioner and others similarly situated could be heard and have an opportunity to present and contest evidence and claimed matters of official notice.

The permit portions of the Act recognize that a reasonable sharing of the use of the waters of the State must be afforded to plants which were in existence when the statute was enacted (1955). It also recognizes that such sharing by existing plants should be on the basis of standards less stringent than those applicable to plants constructed after the effective date of the Act, provided that any pollution which results therefrom is not "undue." No such standards have been established nor necessary data assembled therefor, nor public hearings held thereon whereat Petitioner and others similarly situated, could be heard.

H. Petitioner's continued disposal of waste by its present methods into Port Gardner from its Everett mill would not affect the public health or enjoyment or other industrial uses in any way, nor would it involve excessive use of Port Gardner waters by one industry with substantial, or disproportionate detriment to other lawful users. The effect, if any, which discontinuance of such disposal would have on wild life, birds, game, fish and other aquatic life, would not be substantial. The conditions of Permit T-403 would deprive Petitioner of its reasonable participation in the sharing of the use of Port Gardner waters.

WHEREFORE, the Petitioner prays that a hearing be held upon this petition for the purpose of receiving evidence and determining the matters heretofore set forth, and thereupon granting Petitioner a proper and lawful permit for disposing of its wastes from its Everett pulp mill into Port Gardner.

Petitioner further prays that a reasonable time be granted Petitioner by the Commission to assemble and prepare the factual data and scientific information necessary for the proper presentation of the facts heretofore alleged and, pending said hearing and final determination of this matter, a stay be granted permitting Petitioner to continue the disposal of its wastes from its Everett pulp mill into Port Gardner by the methods now being used at said pulp mill.

ACKNOWLEDGED BY
DELIVERY OF COPY THIS
9 DAY OF June
1961
JOHN J. O'CONNELL, ATTORNEY GENERAL
BY
ASSISTANT ATTORNEY GENERAL

Respectfully submitted

MACBRIDE, MATTHEWS & HANIFY
Attorneys for Scott Paper Company

By Thomas H. Macbride
Thomas H. Macbride Partner

STATE OF WASHINGTON)
) SS
COUNTY OF KING)

ROY L. DAVIS, being first duly sworn, on oath deposes and says:

That he is the Manager of Scott Paper Company, West Coast Division, Everett, Washington, and as such is authorized to and does make this verification for and on its behalf; that he has read the within and foregoing Petition, knows the contents thereof and believes the same to be true.

Roy L. Davis
Roy L. Davis

SUBSCRIBED and SWORN to before me this 9th day of June 1961.

Thomas H. Macbride
NOTARY PUBLIC in and for the State of Washington, residing at Seattle

BEFORE THE WASHINGTON POLLUTION CONTROL COMMISSION

IN THE MATTER OF THE PETITION OF SCOTT PAPER COMPANY FOR ISSUANCE OF A LAWFUL WASTE DISPOSAL PERMIT, OR IN LIEU THEREOF FOR AMENDMENT OF TEMPORARY PERMIT T-405	PETITION

I.

A. Petitioner is Scott Paper Company, a Pennsylvania corporation authorized to do business in the State of Washington, with its Washington address and place of business at Everett, Washington.

B. Petitioner seeks issuance of a reasonable and lawful permit in substitution for Washington Pollution Control Commission's Temporary Waste Discharge Permit T-405 bearing date of May 19, 1961 (which was first received by Petitioner on May 29, 1961), or in lieu thereof the amendment of said temporary Permit T-405 to permit continued reasonable use by Petitioner of the waters of Port Gardner for the disposal of waste from its Everett paper mill.

C. Petitioner requests: That a hearing upon this petition be held before the above entitled Commission; that adequate time be granted Petitioner for preparation therefor in accordance with and for the reasons hereafter set forth; and that, pending final determination of this cause, a stay be granted permitting Petitioner's continuance of waste disposal from its Everett paper mill into Port Gardner by present methods.

II.

A. Petitioner alleges that the conditions contained in Permit

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T-405 were prematurely issued and were promulgated contrary to law and impose arbitrary and capricious requirements upon Petitioner not authorized by law, to-wit:

1. No standards have been established which warrant the requirements imposed by said conditions;

2. No notice has been given of any hearings whereat any such standards were to be considered not whereat said conditions were to be considered;

3. No hearings have been held whereat any such standards or conditions were considered;

4. No evidence or matters of official notice has been taken of any fact or other matter bearing on any such standards or on said conditions which has been disclosed or identified to Petitioner or the public, or which has been subject to examination or cross examination or opportunity to check accuracy, or to rebuttal by Petitioner or the public;

5. No findings of fact or conclusions of law bearing on any such standards or on said conditions have been made which were founded on any evidence or matter of official knowledge so disclosed to, and subject to examination and rebuttal by, Petitioner or the public;

6. The Commission imposes conditions in the issuance of its Temporary Permit T-405 which, if accepted by Petitioner, would require unreasonable and confiscatory expenditures by Petitioner within a period of two and one-half (2½) years, as hereinafter set forth, but contains no provision that after said expenditures are so made Petitioner will be per-

mitted to continue disposal of waste in accordance with the terms of said Permit, or at all;

7. The Commission's failure to adopt reasonable standards for use of the waters of the State by all lawful users thereof grants to other citizens, classes of citizens and corporations, privileges and immunities which are not available upon the same terms to Petitioner and is in violation of Article I, Section 12, of the Washington State Constitution and the Fourteenth Amendment of the United States Constitution.

B. Petitioner, without waiver of the foregoing but in the event the same be denied, hereby petitions amendment of Permit T-405 by eliminating therefrom conditions 2 and 3, and alleges as follows:

1. Condition 2 imposes upon Petitioner in the operation of its Everett paper mill requirements for facilities for higher standards of water purity than the Washington Water Pollution Control Act (Chapter 90.48 RCW) authorizes the Commission to require;

2. Condition 2 imposes upon Petitioner, at its Everett paper mill, requirements for achieving methods of waste disposal which are in excess of, and which vary from, any "known, available and reasonable" methods and which the Commission is not authorized to require by said Washington Water Pollution Control Act.

3. In imposing condition 2 upon said Everett paper mill, the Commission fails to conform with the permit sections of

said statute in requiring changes and expenditures for waste disposal in a plant lawfully constructed and operated prior to the enactment and the effective date of said sections;

4. As required by the Commission, condition 2 is in violation of Article I, Section 3, Article I, Section 16, Amendment IX and Article XXI of the Washington State Constitution and Amendment XIV of the Constitution of the United States;

5. Condition 3 is a preliminary to the requirement contained in condition 2 and has no purpose except as a part of said condition. It is also impossible of performance because there is no definition of settleable solids for the removal of which plans are required to be drawn by said condition 3.

C. Petitioner, without waiver of the matters stated in II-A above, but in the event the same be denied, hereby requests the following further amendment of Permit T-405 and alleges as follows:

1. Submission of reports on a daily basis as required by condition 4 constitutes an unreasonable burden on Petitioner and monthly reports on an average basis would provide everything reasonably necessary for the objects and purposes of the Commission.

2. Petitioner's present outfalls, referred to in condition 6, provide adequate methods of waste discharge from the Everett paper mill. Combining them, as required in said condition 6, is not reasonably necessary and would tend to

defeat, or render unnecessarily costly, continued development of good waste disposal practices and would result in less efficient disposal in receiving waters;

3. Conditions 9 and 10 are not proper parts of any permit;

4. Petitioner requests that it be supplied with copies of all matters referred to in said condition 10 of which the Commission has, or will, take official notice in the issuance of said Permit T-405 and in the hearing upon this Petition, together with all other matters and studies and data on file in or under the control of the Commission relating to water conditions of Port Gardner and the actual and/or appropriate use thereof by industry and any and all other lawful users.

III.

Petitioner further alleges as follows:

A. The Everett pulp mill was originally built in 1930 on the shores of Port Gardner. The mill has been in operation ever since. In 1951 Scott Paper Company acquired the pulp mill and other assets from Soundview Pulp Company. At that time the facilities of this plant were limited to the manufacture of pulp and there were employed in its operation approximately 450 persons. This pulp was largely shipped to other parts of the United States for fabrication and distribution. Between 1953 and 1955 Petitioner constructed, at said Everett site, the paper mill where the said pulp was, and is being, fabricated and in the operation of which approximately 1200 additional persons are employed.

B. Said integrated manufacturing operation is an important part of the industrial life of the Puget Sound area. The Everett pulp and paper mill and the pulp industry, generally, contribute substantially to other business and industry in this State. They also contribute substantially to the conservation of the resources of the State of Washington by converting into pulp and paper, and other commodities, vast quantities of forest products, a large portion of which would have little or no use and be abandoned, burned or otherwise destroyed as waste. The marketing of pulp, paper and the other said commodities which are produced from said forest products provides a very substantial benefit and revenue for the people of Washington.

C. Petitioner's methods of disposing of solids (of the general type referred to in condition 2 as "settleable") from its Everett paper mill effluent by filtering them have been improved from time to time, in keeping with the known state of applied science. Petitioner's present methods do not involve excessive use of Port Gardner waters by one class of users with substantial, or disproportionate, detriment to other lawful users. Without definitions and standards setting forth what levels of "settleable solids" removal is referred to in condition 2, Petitioner has no means of knowing what is required by said condition 2. However, Petitioner points out that costs become prohibitive in relation to effects on receiving waters when removal is at percentages higher than those now achieved at the Everett paper mill.

D. Article XXI of the Constitution of the State of Washington provides: "The use of the waters of this state for irrigation, mining and manufacturing purposes shall be deemed a public

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use." (Emphasis supplied). The policy of the legislature, as declared in the Washington Pollution Control Act (Chapter 90.48 RCW) contemplates a reasonable sharing of the use of the waters of the State, having in mind industrial uses as well as protection of health and aquatic life. The statute imposes on the Commission the duty of establishing standards of purity which will accomplish this broad sharing purpose. No such standards have been established. No scientific or engineering data, to properly establish these sharing methods has been sought; or at least presented at a hearing where Petitioner and others similarly situated could be heard and have an opportunity to present and contest evidence and claimed matters of official notice.

The permit portions of the Act recognize that a reasonable sharing of the use of the waters of the State must be afforded the plants which were in existence when the statute was enacted (1955). It also recognizes that such sharing by existing plants should be on a basis less stringent than those applicable to plants constructed after the effective date of the Act, provided that any pollution which results therefrom is not "undue." No such standards have been established nor necessary data assembled therefor, nor public hearings held thereon whereat Petitioner and others similarly situated, could be heard.

E. Petitioner's continued disposal of waste by its present methods into Port Gardner from its Everett mill would not affect the public health or enjoyment or other industrial uses in any way, nor would it involve excessive use of Port Gardner waters by one industry with substantial, or disproportionate detriment to other lawful users. The effect, if any, which discontinuance of such disposal would have on wild life, birds, game, fish and other aquatic life, would not be substantial. The conditions of Permit T-405 would deprive Petitioner of its reasonable participation in the sharing of the use of Port Gardner waters.

WHEREFORE, the Petitioner prays that a hearing be held upon this petition for the purpose of receiving evidence and determining the matters heretofore set forth, and thereupon granting Petitioner a proper and lawful permit for disposing of its wastes from its Everett paper mill into Port Gardner.

Petitioner further prays that a reasonable time be granted Petitioner by the Commission to assemble and prepare the factual data and scientific information necessary for the proper presentation of the facts heretofore alleged and, pending said hearing and final determination of this matter, a stay be granted permitting Petitioner to continue the disposal of its wastes from its Everett paper mill into Port Gardner by the methods now being used at said mill.

Respectfully submitted

MACBRIDE, MATTHEWS & HANIFY
Attorneys for Scott Paper Company

By Thomas H. Macbride
Thomas H. Macbride Partner

STATE OF WASHINGTON)
                    } SS
COUNTY OF KING   )

ROY L. DAVIS, being first duly sworn, on oath deposes and says:

That he is the Manager of Scott Paper Company, West Coast Division, Everett, Washington, and as such is authorized to and does make this verification for and on its behalf; that he has read the within and foregoing Petition, knows the contents thereof and believes the same to be true.

Roy L. Davis
Roy L. Davis

SUBSCRIBED and SWORN to before me this 9th day of June 1961.

Thomas H. Macbride
NOTARY PUBLIC in and for the State
of Washington, residing at Seattle

SERVICE ACKNOWLEDGED BY
DELIVERY OF COPY THIS
9 DAY OF June
19 61
JOHN J. O'CONNELL, ATTORNEY GENERAL
BY T B [illegible]
ASSISTANT ATTORNEY GENERAL

RECEIVED
JUN 9 1961
POLLUTION CONTROL COMMISSION
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POLLUTION CONTROL COMMISSION
FILE

Before The

STATE OF WASHINGTON POLLUTION CONTROL COMMISSION

Olympia, Washington

Re Permit T-406

WEYERHAEUSER COMPANY
PULP DIVISION - SULPHITE MILL
EVERETT, WASHINGTON

Application for Hearing

Comes now Weyerhaeuser Company, herein called "the Company", being a person who feels aggrieved by the above designated Permit and Order of the State of Washington Pollution Control Commission, herein called "the Commission", and hereby applies to the Commission for a hearing on and with respect to said Permit and Order based upon the following facts, circumstances and reasons:

A. FACTUAL BACKGROUND

1. On June 6, 1956, the Commission issued to the Company a temporary waste discharge permit numbered T-66 permitting the discharge of waste from the above identified mill to the waters of Port Gardner Bay, Snohomish County, Washington. A copy of said Permit T-66 is attached hereto, marked Exhibit A, and made a part hereof by this reference. On August 15, 1958, the Company applied for a permanent waste discharge permit for said mill. Through inaction on the part of the Commission, the Company thereafter operated the above identified mill under the provisions of 90.48.200 R.C.W. On September 7, 1960, the Company reapplied for a permanent waste discharge permit having to do with the discharge of waste from the said sulphite mill, a copy of which application is attached hereto, marked Exhibit B, and made a part hereof by this reference.

2. At the invitation of the Commission, representatives of this Company met with the Commission staff in Olympia on March 24, 1961 to discuss a proposed draft of a temporary waste discharge permit, a copy of which was furnished to the Company at that time

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and is attached hereo, marked Exhibit C, and made a part hereof by this reference. At that meeting the Company was invited to conduct engineering studies of alternate proposals and to work with the Commission staff to evaluate the feasibility of any such proposals. The Company began such engineering studies in a good faith attempt to cooperate with the request of the Commission. Thereafter, on April 26, 1961, the Commission notified the Company by letter that such engineering studies would have to be completed so that any alternate proposals could be submitted to the Commission prior to May 12, 1961. Because of the magnitude of the engineering studies which the Company was undertaking, the Company replied by letter on May 8, 1961 to the effect that its engineering data could not be assembled by May 12, 1961. Being unable to reasonably comply with the Commission's deadline, the Company submitted an alternate proposal in the form of a revision of Permit T-66.

3. On May 19, 1961, the Commission issued a temporary waste discharge permit designated Permit T-406, copy of which is attached hereto, marked Exhibit D, and made a part hereof by this reference. Said Permit T-406 was received by the Company on May 29, 1961, together with a letter and certified copy of resolution, each dated May 23, 1961, copies of which are attached hereto, marked Exhibit D-1 and D-2, and made a part hereof by this reference.

B. PERMIT T-406

The Company respectfully submits that Permit T-406 is an unreasonable exercise of the powers of the Commission for the following reasons and considerations, among others:

(1) Permit T-406 was not issued in compliance with the policy enunciated in 90.48.010 R.C.W. in that the Permit does not balance the industrial expansion of the State against the needs of other competing water uses of Port Gardner Bay. In addition, Permit T-406 requires the use of an unreasonable method by the Company to prevent and control the pollution of the waters of said Bay.

(2) The Commission has not determined what qualities and properties of water shall indicate a polluted condition of the waters of Port Gardner Bay in any respect, as required pursuant to the provisions of 90.48.070 R.C.W. Accordingly, prior to and at the time of the issuance of Permit T-406 by the Commission, it was and now is wholly unable to make a finding that the disposal of waste material as proposed in the aforementioned application of the Company (Exhibit B) would unduly pollute the waters of Port Gardner Bay.

(3) The terms and provisions of Permit T-406, particularly paragraphs 2 and 3 thereof, absolutely prohibit the discharge of (i) settleable solids from all mill effluents and (ii) a minimum of 85% of the digester cooking liquor total solids to the waters of the State, that is, Port Gardner Bay, on and after November 24, 1963. The provisions of paragraph 12 of Permit T-406 do not afford relief of any nature to the Company for the reason that such terms and provisions require that any alternative method for the removal and disposal of wastes from said mill must be equally effective to those required by conditions 2 and 3 of said Permit to qualify such alternative method for consideration by the Commission.

(4) In order to accomplish the requirements of paragraphs 2 and 3 of Permit T-406 by any method presently known to the Company, it would be required to expend a minimum of $10,000,000. Such action and expenditure would be wholly unreasonable for the following reasons:

(a) There is no competent evidence known to the Company that the present discharge of such solids to the waters of Port Gardner Bay is deleterious to other or competing uses thereof.

(b) It has not been shown, to the knowledge of the Company, that the installation of a costly recovery system at its Everett Sulphite Mill would materially benefit competing uses of the waters of

Port Gardner Bay.

(c) There is no competent engineering data or information known to the Company which establishes that the recovery of such solids would materially improve the water quality standards of the waters of Port Gardner Bay.

(d) Such requirements ignore and would prevent industrial development in the State of Washington.

(e) Such requirements are not, to the Company's knowledge, based upon any adequate determination by the Commission of the qualities and properties of the waters of Port Gardner Bay which indicate a polluted condition.

(f) Such a requirement will materially and unnecessarily increase the cost of producing sulphite pulp at the Company's Everett Mill and could result in forcing the Company to shift some or all of its Everett sulphite pulp production elsewhere, within or without the State of Washington, with related and immediate effect upon

- (i) the number and complement of its employees at Everett,
- (ii) the products the Company produces at Everett, Washington,
- (iii) the suppliers of wood, chemicals and services to tne Company's Everett Sulphite Mill, and
- (iv) the level of industrial activity and employment in the City of Everett, Washington.

(5) The Company submits that

(a) The issuance of Permit T-406 is in excess of the statutory power of the Commission to adopt rules, regulations and standards which require use of such known, available and reasonable methods of preventing pollution as are consistent with the public welfare, including industrial expansion, as the Commission deems necessary to carry out the purposes of R.C.W. Chapter 90.48.

(b) Permit T-406 constitutes an unreasonable and arbitrary exercise of the powers vested in the Commission under R.C.W. 90.48.180 in that it would prohibit the discharge or disposal of solids to the waters of the State, namely, Port Gardner Bay, on and after November 24, 1963, as expressed in paragraphs 2 and 3 of said Permit.

(c) The specification of the conditions of Permit T-406 by the Commission without its having first determined what qualities and properties of water shall indicate a polluted condition of the waters of the State, viz., Port Gardner Bay, constitutes an unlawful, unreasonable and arbitrary exercise by the Commission of the powers vested in it under and pursuant to R.C.W. Chapter 90.48.

(d) Prohibition of the discharge of industrial wastes by the Commission is in violation of the policy expressed by the Legislature to insure the purity of all waters of the State consistent with public health and public enjoyment thereof, the propagation and protection of wildlife, birds,game, fish and other aquatic life, and the industrial development of the State in that it ignores and would prevent industrial development in this State.

(e) Permit T-406 is discriminatory as to this Company, as well as to other members of the pulp and paper industry, as distinguished from other users of the waters of the State, viz., Port Gardner Bay.

(f) The terms and provisions of Permit T-406 do not either come within the express language of the statute (R.C.W. 90.48.010 et seq.) or implement the policy of the statute.

C. INFORMATION REQUESTED

In order adequately to prepare for the hearing sought by this application, the Company respectfully requests that the Commission furnish to or make available for examination by representatives of the Company the following data and information:

(a) All studies of and reports relating to the waters of Port Gardner Bay which the Commission has taken into consideration and upon which it relied in making its finding "that the disposal of the waste material as proposed in the application (of the Company - Exhibit B) would otherwise unduly pollute the waters of the State of Washington".

(b) Technical bulletins, matters of technical knowledge, and matters of notorious fact and business custom contained in public records of the Commission.

(c) Any technical reports made by or to the Commission upon which the Commission based its finding "that the disposal of the waste material as proposed in the application (Exhibit B) would otherwise unduly pollute the waters of the State of Washington".

(d) Definitions or determinations of the qualities and properties of the waters of Port Gardner Bay constituting undue pollution thereof which have been relied upon by the Commission in issuing Permit T-406.

D. RELIEF SOUGHT

WHEREFORE, it is hereby respectfully requested that the Commission:

(a) Grant to the Company a hearing on and with respect to its application for a permanent permit.

(b) Furnish to the Company the data and information herein requested.

(c) Fix a time for such hearing as reasonably to allow for examination by the Company of such data and information and to prepare for the presentation of relevant evidence to the Commission.

(d) Following such hearing, grant to the Company a permanent permit on reasonable and appropriate terms and conditions in conformance with R.C.W. Chapter 90.48, as amended, extending for a period of five years.

(e) Revoke Permit T-406.

Respectfully Submitted,
WEYERHAEUSER COMPANY

Charles W. Bingham
Attorneys

12th Floor
Tacoma Building
P. O. Box 1645
Tacoma, Washington

STATE OF WASHINGTON)
) ss:
COUNTY OF PIERCE)

ROBERT W. BOYD, being first duly sworn on oath, deposes and says:

That he is Secretary and Controller of Weyerhaeuser Company, applicant herein; that he has read the foregoing Application for Hearing, knows the contents thereof, and believes the same to be true.

Robert W. Boyd

SUBSCRIBED AND SWORN TO before me this 9th day of June, 1961.

Edith Ashen
Notary Public in and for the State
of Washington, residing at Tacoma.

S. F. No 8574—5-55—2M 41901

STATE OF WASHINGTON
POLLUTION CONTROL COMMISSION
OLYMPIA, WASHINGTON

Permit **T** 66

In accordance with Chapter 71, Laws of 1955,
A WASTE DISCHARGE PERMIT is issued to:

Weyerhaeuser Timber Company
Pulp Division - Sulphite Mill
Everett, Washington

Date of issue June 6, 1956

Date of expiration June 10, 1957

Temporary
Permit

Waste not to exceed--27,000,000-- gallons per day may be discharged to

Port Gardner Bay, subject to the following conditions:

1. The word "waste" in the above statement refers to the total volume of cooling and contaminated waters to be discharged.

2. The suspended combustible solids content of hydraulic log barker effluents must be less than 2,000 pounds per 1,000,000 gallons of water passing through the log barker during actual debarking operations.

3. Automatic flow recording and sampling equipment is to be installed on sewers discharging process waste waters.

4. A monthly report, starting September 1, 1956, containing the average, maximum and minimum values of the following items for each grade of pulp produced: Pulp production in tons per day, volume of waste flow in gallons per day, suspended combustible solids in pounds per day, and total solids in pounds per day. If a diffuser line or lagoon is in use in addition to direct discharge, indicate the flow and content to each.

5. Knotter, flat screen and centricleaner rejects are to be removed from the mill effluent, and are not to be discharged to a waterway.

6. Fibers, as suspended combustible materials, shall not be more than 5000 pounds per day.

7. Mill effluents are to be combined and discharged through a submerged outfall in order to obtain a maximum initial dilution, provide for neutralization of acid and alkaline wastes, and obtain a rapid dissipation of any residual chlorine.

(continued on reverse side)

This permit does not allow the discharge of wastes other than those mentioned herein. A new application shall be submitted whenever a change in the waste to be discharged is anticipated.

This permit is subject to termination if the Commission finds: (1) That it was procured by misrepresentation of any material fact or by lack of full disclosure in the application; (2) That there has been a violation of the conditions thereof; (3) That a material change in quantity or type of waste disposal exists.

In the event that a material change in the conditions of the state waters utilized creates a dangerous degree of pollution, the Commission may specify additional conditions to this permit.

Signed: E. F. Eldridge
Director, Pollution Control Commission.

This permit does not in any way release the permittee from liability for damage to persons or property caused by or resulting from the discharge of waste.

EXHIBIT A

APPENDIX 79
BILL'S RECORDING SERVICE
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8. Within one year from the date of this permit, a firm proposal shall be made to the Commission indicating the method by which the BOD and solids characteristics of spent cooking liquors, including major washings, will be utilized, recovered or treated. This proposal shall indicate the time necessary to complete the project. During this year, quarterly reports shall be made to this Commission as to the progress of the preparation of this proposal.

9. White waters must be reused insofar as practical, and white waters must be passed through an efficient saveall prior to discharge.

10. Sewage treatment facilities must be installed or connection made to the municipal sewage treatment plant at the time that sewage treatment facilities are in use by the City of Everett.

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APPENDIX 710
BILL'S RECORDING SERVICE

EXTRA COPY: NOT TO BE PLACED IN OFFICE FILES—TO BE DESTROYED BY RECIPIENT UNLESS HELD FOR PERSONAL USE.

bcc: VFBacon
RJLeRoux
DCSmith-Tacoma
Permit File

September 7, 1960

RECEIVED
SEP 8 1960
LAW DEPT.
Tacoma, Wash.

Mr. Arthur Carton, Director
Pollution Control Commission
State of Washington
224 Old Capitol Building
Olympia, Washington

Dear Mr. Carton:

Under date of June 6, 1956, Temporary Permit T-66 was issued with respect to our sulfite mill at Everett, Washington. This was extended for specified periods from time to time and under date of August 21, 1958 was extended for an indefinite period.

We wish to apply at this time for a permanent permit. All information with respect to our mill operations is in your files. As you know, we have complied with all of the conditions set forth in T-66 except those contained in paragraphs 8 and 10. As to the latter, we have previously indicated our intention to connect with the municipal sewage facilities when they are in use in the City of Everett. While the City has made substantial progress toward completion of such facilities, it is not yet possible to make this connection, but we reaffirm our intention to do so when it is.

As to the requirements set forth in paragraph 8, we have intensively studied possible methods by which our sulfite waste liquor could be recovered. We have discovered no method which is economically feasible for this operation.

More importantly, however, the operation of our diffusion line over a period of years has demonstrated that outside of a limited dispersal area our present waste disposal methods are compatible with alternate water uses. The installation of a recovery system would confer no material benefit on such alternate water uses. We submit that because our methods of waste disposal do not "unduly pollute" the waters of Puget Sound, we are entitled to a permanent basis.

Very truly yours,

[illegible]

APPENDIX 711
BILL'S RECORDING SERVICE

EXHIBIT B [illegible]

Reproduced from
best available copy.

Date of Issue ____________________

Name and Address:

Date of Expiration Nov. 26, 1963

Weyerhaeuser Timber Company
Pulp Division - Sulfite Mill
Everett, Washington

Waste not to exceed 28,000,000 gallons per day may be discharged to Port Gardner Bay, subject to the following conditions:

1. The word "waste" in the above statement refers to the total volume of cooling and contaminated waters to be discharged.

2. Facilities for the removal of settleable solids from all mill effluents are to be installed and in use by the expiration date of this permit. Disposal of these solids shall be other than to waters of the State.

3. Facilities for the removal of 85% (minimum) of the digester cooking liquor total solids are to be installed and in use by the expiration date of this permit. Disposal of these solids shall be other than to waters of the State.

4. Engineering plans for the above-mentioned facilities (permit conditions 2 and 3) are to be submitted to this Commission for review and approval by March 1, 1962.

5. A report of effluent characteristics is to be submitted monthly, based upon the analysis of composited effluent samples. This report shall contain the following information for each day of operation:

    1. Pulp production in tons
    2. Waste flow in gallons (for each sewer outfall)
    3. Suspended combustible solids losses in pounds (for each sewer outfall)
    4. Total solids losses in pounds (for each sewer outfall)

6. All existing waste recovery and abatement facilities are to be adequately maintained and continuously and efficiently operated.

7. Mill effluents are to be combined and discharged through a submerged outfall at a depth and location necessary to provide maximum initial dilution.

8. Sanitary sewage is to be treated in continuously maintained sewage treatment facilities or connection made to the municipal sewer system by the expiration date of this permit.

9. This permit is conditioned upon the continuous and efficient maintenance and operation of all existing waste recovery and pollution abatement facilities operated by or under the control of permittee.

    In the event of an emergency or condition beyond the control of the permittee, which prevents continuous operation of existing waste recovery and pollution abatement facilities, permittee shall:

    1. Immediately notify this Commission;
    2. Provide the Commission access to its facilities and all pertinent information as to cause of any interruption in operation of such waste recovery and pollution abatement facilities; and
    3. Submit such other information as the Commission may request from time to time thereafter.

EXHIPIT C

S. F. No. 8374—6-53—2M. 41381.

STATE OF WASHINGTON
POLLUTION CONTROL COMMISSION
OLYMPIA, WASHINGTON

Permit T 406

In accordance with Chapter 71, Laws of 1955,
A WASTE DISCHARGE PERMIT is issued to:

Date of issue May 19, 1961

Date of expiration Nov. 24, 1963

Weyerhaeuser Company
Pulp Division - Sulfite Mill
Everett, Washington

Waste not to exceed ✓ 28,000,000 gallons per day may be discharged to Port Gardner Bay, subject to the following conditions:

5 1. The word "waste" in the above statement refers to the total volume of cooling and contaminated waters to be discharged.

2. Facilities for the removal of settleable solids from all mill effluents are to be installed and in use by the expiration date of this permit. Disposal of these solids shall be other than to the waters of the State.

3. Facilities for the removal of 85% (minimum) of the digester cooking liquor total solids are to be installed and in use by the expiration date of this permit. Disposal of these solids shall be other than to waters of the State.

4. Engineering plans for the above-mentioned facilities (permit conditions 2 and 3) accompanied by pertinent supporting data are to be submitted to this Commission for review and approval by March 1, 1962.

5. A report of effluent characteristics is to be submitted monthly, based upon the analysis of composited effluent samples. This report shall contain the following information for each day of operation:

   1. Pulp production in tons.
   2. Waste flow in gallons (for each sewer outfall).
   3. Suspended combustible solids losses in pounds (for each sewer outfall).
   4. Total solids losses in pounds (for each sewer outfall).

TEMPORARY

6. The normal inplant slime control program and procedures, in effect or as revised, shall be reported in detail giving chemical descriptions, amounts, and methods, and points of application for each slimeicide chemical used. Deviations from the above programs and procedures shall be noted on the monthly effluent report.

This permit does not allow the discharge of wastes other than those mentioned herein. A new application shall be submitted whenever a change in the waste to be discharged is anticipated.

This permit is subject to termination if the Commission finds: (1) That it was procured by misrepresentation of any material fact or by lack of full disclosure in the application; (2) That there has been a violation of the conditions thereof; (3) That a material change in quantity or type of waste disposal exists.

In the event that a material change in the conditions of the state waters utilized creates a dangerous degree of pollution, the Commission may specify additional conditions to this permit.

Signed: ....
Director, Pollution Control Commission

This permit does not in any way release the permittee from liability for damage to persons or property caused by or resulting from the discharge of waste.

EXHIBIT D

AP[illegible]
BILL'S REC[illegible]

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Weyerhaeuser Company
Pulp Division - Sulfite Mill
Everett, Washington

T-406

May 19, 1961
Nov. 24, 1963

7. Mill effluents are to be combined and discharged through a submerged outfall at a depth and location necessary to provide maximum initial dilution.

8. Sanitary sewage is to be treated in continuously maintained sewage treatment facilities or connection made to the municipal sewer system by the expiration date of this permit.

9. This permit is conditioned upon the continuous and efficient maintenance and operation of all existing waste recovery and pollution abatement facilities operated by or under the control of permittee.

   In the event of an emergency or condition beyond the control of the permittee, which prevents continuous operation of existing waste recovery and pollution abatement facilities, permittee shall:

   1. Immediately notify this Commission;
   2. Provide the Commission access to its facilities and all pertinent information as to cause of any interruption in operation of such waste recovery and pollution abatement facilities and
   3. Submit such other information as the Commission may request from time to time thereafter.

10. The conditions under which this temporary permit has been extended are prescribed pursuant to Chapter 90.48 of the Revised Code of Washington and Section IV of Chapter 04.250 of the Rules of Practice and Procedure before the Pollution Control Commission.

11. In fixing the conditions under which this temporary permit has been extended the Commission has taken official notice of the matters of technical knowledge, notorious fact and business custom contained in its public records, "technical bulletins", and reports of permittees engaged in industrial operations in the affected areas.

12. Any alternative method for the removal and disposal of wastes which are equally effective to those required by conditions 2 and 3 of this permit will be considered if submitted prior to January 1, 1962.

Director, Pollution Control Commission

APPENDIX 714
BILL'S RECORDING SERVICE

ALBERT D. ROSELLINI
GOVERNOR
Art Garton
~~[illegible]~~
DIRECTOR

STATE OF WASHINGTON
Pollution Control Commission
324 OLD CAPITOL BUILDING, OLYMPIA

COMMISSION
EARL COE, CHAIRMAN
JOHN BIGGS
BERNARD BUCOVE
MILO MOORE
JOE DWYER

May 23, 1961

Weyerhaeuser Company
Pulp Division
Everett, Washington

Gentlemen:

The Commission has determined that it is in the public interest to issue the enclosed temporary permit at this time.

While your cooperation in meeting with our staff with respect to the conditions upon which this permit is issued are appreciated, we feel that further delays are undesirable. The Commission has reached the conclusion that the conditions upon which this permit is issued are necessary to effectuate the policy of RCW 90.48.010 and that the disposal of waste material as proposed in the application would otherwise unduly pollute waters of the State.

You have available to you of course, the administrative remedies specified in RCW 90.48.130 and the administrative procedures Act of 1959 if you feel that any of the conditions of this permit are onerous to you.

We wish to reassure you that the Commission has every desire to cooperate with you in order to maintain a favorable economic climate for the industry at the same time affording protection to the public and other affected industry.

I enclose a certified copy of the Resolution adopted by the Commission today.

Very truly yours,

EARL COE, CHAIRMAN
POLLUTION CONTROL COMMISSION

EC:dn

Enclosures

APPENDIX 715
BILL'S RECORDING SERVICE

[illegible]

EXHIBIT D-1

CERTIFIED COPY OF RESOLUTION

Be it hereby resolved that Temporary Permit number 405 shall be issued immediately upon the conditions set forth therein and on the further condition that any alternative method for removal and disposal of wastes which are equally effective to those required by conditions 2 and 3 of this permit will also be considered if submitted prior to January 1, 1962.

The Commission further finds:

A. That the conditions upon which this permit is issued are necessary to effectuate the Policy of RCW 90.48.010, and

B. That the disposal of the waste material as proposed in the application would otherwise unduly pollute the waters of the State of Washington.

Subscribed and sworn to before me this 23 day of May, 1961.

/s/ Preston O. Thomas

Notary Public in and for the State of Washington

Residing at Olympia, Washington

EXHIBIT D-2

Reproduced from best available copy.

LAW OFFICES OF
ANDERSON AND HUNTER
[illegible] FIRST NATIONAL BANK BUILDING
EVERETT, WASHINGTON
TELEPHONE ALPINE 2-[illegible]

J. D. ANDERSON
J. P. HUNTER
M. J. CARLSON

June 9, 1961

Pollution Control Commission
224 Old Capital Building
Olympia, Washington

Re: SIMPSON PAPER CO. --
Temporary Permits T-408 and T-409

Gentlemen:

Enclosed herewith please find original and one copy of Notice of Appeal and application for hearing which is served upon you on behalf of SIMPSON-LEE PAPER COMPANY of this city.

Would you kindly acknowledge receipt upon the copy and return the same to me.

I am advised that your letter of May 23, 1961, to Simpson-Lee Paper Company was received by the company at Everett on May 29, 1961. Therefore, the enclosed Notice of Appeal should reach you within the fifteen-day period.

Very truly yours,

ANDERSON and HUNTER

By J P Hunter
J. P. Hunter

JPH:se
Encls.-2

cc: Robert Boyle, Manager
Simpson-Lee Paper Co.

AP[illegible] 61
[illegible]

BEFORE THE POLLUTION CONTROL COMMISSION
OF THE STATE OF WASHINGTON

In the Matter of)
)
SIMPSON-LEE PAPER CO., of)
Everett, Washington.)
)
)
)

NOTICE OF APPEAL AND REQUEST FOR HEARING

TO: POLLUTION CONTROL COMMISSION of the State of Washington:

YOU, AND EACH OF YOU, ARE HEREBY REQUIRED to take notice that SIMPSON-LEE PAPER CO., a Washington corporation, of Everett, Washington, feeling itself aggrieved by the actions of the Pollution Control Commission of the State of Washington, does hereby appeal from and request a hearing before the Commission pertaining to the following orders and actions heretofore taken by the Commission, to-wit:

> Your petitioner excepts to, appeals from, and requests a hearing concerning the findings of the Commission as set forth in its Resolution dated May 23, 1961, which findings, to which your petitioner takes exception and desires a hearing, are as follows:
>
> A. That the conditions upon which this permit is issued are necessary to effectuate the Policy of RCW 90.48.010, and
>
> B. That the disposal of the waste material as proposed in the application would otherwise unduly pollute the waters of the State of Washington.
>
> Your petitioner further appeals from, takes exception to and requests a hearing concerning the issuance to your petitioner of Permits No. T-408 and T-409 dated May 19, 1961.

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BILL'S REC[illegible] SERVICE

Your petitioner feels aggrieved and requests a hearing before the Commission pursuant to R.C.W. 90.48.130 upon the grounds, among others, that there is no evidence to support the findings of the Commission as set forth in its Resolution of May 23, 1961, and that there is no evidence to support the restrictions contained in Permits No. T-408 and T-409 dated May 19, 1961, and that the actions of the Commission in the enactment of said Resolution and in the issuance of said Permit are arbitrary, capricious, not founded upon any evidence and are contrary to law.

DATED at Everett, Washington, this 9th day of June, 1961.

SIMPSON-LEE PAPER COMPANY,
a Washington corporation

By J P Hunter
J. P. HUNTER, Its attorney
at law and attorney in fact.

ANDERSON and HUNTER
Attorneys at Law
302 First National Bank Building
Everett, Washington

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SERVICE

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BEFORE THE WASHINGTON POLLUTION CONTROL COMMISSION

IN THE MATTER OF THE PETITION OF)
SCOTT PAPER COMPANY FOR ISSUANCE)
OF A LAWFUL WASTE DISPOSAL PERMIT,)
OR IN LIEU THEREOF FOR AMENDMENT) PETITION
OF TEMPORARY PERMIT T-412)

I

A. Petitioner is Scott Paper Company, a Pennsylvania corporation authorized to do business in the State of Washington, with its Washington address and place of business at Everett, Washington.

B. Petitioner seeks issuance of a reasonable and lawful permit in substitution for Washington Pollution Control Commission's Temporary Waste Discharge Permit T-412 bearing date of May 19, 1961 (which was first received by Petitioner on May 29, 1961), or in lieu thereof, the amendment of said Temporary Permit T-412 to permit continued reasonable use by Petitioner of the waters of Guemes Channel for the disposal of waste from its Anacortes pulp mill.

C. Petitioner requests: That a hearing upon this petition be held before the above entitled Commission; that adequate time be granted Petitioner for preparation therefor in accordance with and for the reasons hereafter set forth; and that, pending final determination of this cause, a stay be granted permitting Petitioner's continuance of waste disposal from its Anacortes pulp mill into Guemes Channel by present methods.

II

A. Petitioner alleges that the conditions contained in Permit

APPENDIX H1
BILL'S RECORDING SERVICE

T-412 were prematurely issued and were promulgated contrary to law, and impose arbitrary and capricious requirements upon Petitioner not authorized by law, to-wit:

1. No standards have been established which warrant the requirements imposed by said conditions; —No

2. No notice has been given of any hearings whereat any such standards were to be considered nor whereat said conditions were to be considered;

3. No hearings have been held whereat any such standards or conditions were considered;

4. No evidence or matters of official notice has been taken of any fact or other matter bearing on any such standards or on said conditions which has been disclosed or identified to Petitioner or the public, or which has been subject to examination or cross examination or opportunity to check accuracy or to rebuttal by Petitioner or the public;

5. No findings of fact or conclusions of law bearing on any such standards or on said conditions have been made which were founded on any evidence or matter of official knowledge so disclosed to, and subject to examination and rebuttal by, Petitioner or the public;

6. The Commission imposes conditions in the issuance of its Temporary Permit T-412 which, if accepted by Petitioner, would require unreasonable expenditures by Petitioner within a period of two and one-half (2½) years, as hereinafter set forth, but contains no provision that after said expenditures

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are so made Petitioner will be permitted to continue disposal of waste in accordance with the terms of said Permit, or at all;

7. The Commission's failure to adopt reasonable standards for use of the waters of the State by all lawful users thereof grants to other citizens, classes of citizens and corporations privileges and immunities which are not available upon the same terms to Petitioner and is in violation of Article I, Section 12, of the Washington State Constitution and the Fourteenth amendment of the United States Constitution.

B. Petitioner, without waiver of the foregoing but in the event the same be denied, hereby petitions amendment of Permit T-412 by eliminating therefrom conditions 3, 4 and 5, and alleges as follows:

1. Conditions 3 and 4 impose upon Petitioner in the operation of its Anacortes pulp mill requirements for facilities for higher standards of water purety than the Washington Water Pollution Control Act (Chapter 90.48 RCW) authorizes the Commission to require;

2. Conditions 3 and 4 impose upon Petitioner, at its Anacortes pulp mill, requirements for acheiving methods of waste disposal which are in excess of, and which vary from any "reasonable" methods and which the Commission is not authorized to require by said Washington Water Pollution Control Act.

3. In imposing conditions 3 and 4 upon said Anacortes pulp mill, the Commission fails to conform with said statute in

requiring changes and expenditures for waste disposal in a plant lawfully constructed and operated prior to the enactment and the effective date of said statute.

4. As required by the Commission, conditions 3 and 4 are in violation of Article I, Section 3, Article I, Section 16, Amendment IX and Article XXI of the Washington State Constitution and Amendment XIV of the Constitution of the United States.

5. Condition 5 is a preliminary to the requirements contained in conditions 3 and 4 and has no purpose except as a part of said conditions.

C. Petitioner, without waiver of the matters stated in II-A above, but in the event the same be denied, hereby requests the following further amendment of Permit T-412 and alleges as follows:

1. Submission of reports on a daily basis as required by condition 6 constitutes an unreasonable burden on Petitioner, and monthly reports on an average basis would provide everything reasonably necessary for the objects and purposes of the Commission.

2. Conditions 11 and 12 are not proper parts of any permit.

3. Petitioner requests that it be supplied with copies of all matters referred to in said condition 12 of which the Commission has, or will, take official notice in the

issuance of said Permit T-412 and in the hearing upon this petition, together with all other matters and studies and data on file in or under the control of the Commission relating to water conditions of Guames Channel, Fidalgo Bay, Padila Bay and neighboring waters, and the actual and/or appropriate use thereof by industry and any and all other lawful users.

III

Petitioner further alleges as follows:

A. The Anacortes pulp mill was originally built in the years 1923 to 1925 on the shores of Fidalgo Bay, The mill has been in operation ever since. In 1940 Scott Paper Company acquired the beneficial ownership of the Anacortes pulp mill.

B. The Anacortes pulp mill is an important part of the industrial life of the Skagit-Whatcom area. The Anacortes pulp mill and the pulp industry generally, contribute substantially to other business and industry in this State. They also contribute substantially to the conservation of the resources of the State of Washington by converting into pulp vast quantities of forest products, a large portion of which would have little or no use and be abandoned, burned or otherwise destroyed as waste. The Anacortes pulp mill also purchases from loggers and farmers and others, alder and other hard woods which have no other market, which would otherwise be wasted. The marketing of pulp produced from said forest products provides a very substantial benefit and revenue for the people of Washington.

C. In 1952 in the closest possiblecooperation with the Wash-

APPENDIX H5
BILL'S RECORDING SERVICE

ington Pollution Control Commission, and in accordance with designs approved by the Commission, Petitioner, at the high initial cost (in relation to the value of the mill) of $61,989, constructed, installed and put into operation a pipe line which is 5200 feet in length and which diverts the flow of digester cooking solids and other mill effluents from Fidalgo Bay to Guemes Channel. This disperses digester cooking liquors and other solids in an area where the dispersal effects of tides, winds and currents flowing toward the sea are at a maximum. All of the digester cooking liquirs (diluted with wash waters) of Petitioner's Amacortes pulp mill is now dispersed through this pipe line. It is in good condition, functioning excellently and has many years of remaining useful life, and effectuates dispersal of wastes such that substantial or disproportionate detrement to other lawful users is avoided.

D. Article XXI of the Constitution of the State of Washington provides: "The use of the waters of this state for irrigation, mining and manufacturing purposes shall be deemed a public use. (emphasis supplied). The policy of the Legislature, as declared in the Washington Pollution Control Act (Chapter 90.48 RCW) contemplates a reasonable sharing of the use of the waters of the State, having in mind industrial uses as well as protection of health and acquatic life. The statute imposes on the Commission the duty of establishing standards of purety which will accomplish this broad sharing purpose. No such standards have been established. No scientific or engineering data to properly establish these sharing standards has been sought, or at least presented at a hearing where Petitioner and others similarly situated could be heard and have an opportunity to present and contest evidence and claimed matters of official notice.

The permit portions of the Act recognize that a reasonable sharing of the use of the waters of the State must be afforded to plants which were in existence when the statute was enacted (1955). It also recognizes that such sharing by existing plants may be at lower standards than those applicable to plants constructed after the effective date of the Act, provided that any pollution which results therefrom is not "undue". No such standards have been established nor necessary data assembled therefor, nor public hearings held thereon whereat Petitioner and others similarly situated, could be heard.

E. Petitioner's continued disposal of waste by its present methods into Guemes Channel from its Anacortes mill would not affect the public health or enjoyment or other industrial uses in any way, nor would it involve excessive use of Guemes Channel or neighboring waters by one industry with substantial or disproportionate detriment to other lawful users. The effect, if any, which compliance with conditions 3 and 4 of Permit T-412 would have on wild life, birds, game, fish and other acquatic life, would not be substantial. The conditions of Permit T-412 would deprive Petitioner of its reasonable participation in the sharing of the use of Guemes Channel waters unless it installs unnecessary facilities at great cost.

H7
SERVICE

WHEREFORE, the Petitioner prays that a hearing be held upon this Petition for the purpose of receiving evidence and determining the matters heretofore set forth, and thereupon granting Petitioner a proper and lawful permit for disposing of its wastes from its Anacortes pulp mill into Guemes Channel.

Petitioner further prays that a reasonable time be granted Petitioner by the Commission to assemble and prepare the factual data and scientific information necessary for the proper presentation of the facts heretofore alleged and, pending said hearing and final determination of this matter, a stay be granted permitting Petitioner to continue the disposal of its wastes from its Anacortes pulp mill into Guemes Channel by the methods now being used at said pulp mill.

Respectfully submitted,

MACBRIDE, MATTHEWS & HANIFY

By Thomas H. Macbride
Thomas H. Macbride, Partner

SERVICE ACKNOWLEDGED BY
DELIVERY OF COPY THIS
9 DAY OF June
19 61
JOHN J. O'CONNELL, ATTORNEY GENERAL
BY
ASSISTANT ATTORNEY GENERAL

STATE OF WASHINGTON)
) ss
COUNTY OF KING   )

ROY L. DAVIS, being first duly sworn, on oath deposes and says:

That he is the Manager of Scott Paper Company, West Coast Division, Everett, Washington, and as such is authorized to and does make this verification for and on its behalf; that he has read the within and foregoing Petition, knows the contents thereof, and believes the same to be true.

Roy L. Davis
Roy L. Davis

SUBSCRIBED AND SWORN TO before me this 9 day of June, 1961.

Thomas H. Macbride
Notary Public in and for the State of Washington, residing at Seattle

APPENDIX #8

LIST OF THOSE WHO ATTENDED THE JOINT FEDERAL-STATE CONFERENCE, JANUARY 16-17, 1962

NAME	ORGANIZATION	ADDRESS
John B. Gray	Rayonier, Inc.	Port Angeles
John C. Migdula	Wash. St. Sports Council	P.O. Box 282, Tacoma 1,
Lyle T. Watson	Assn. of County Officials	1063 Capital Way, Olympia
Thomas O. Wimmer		7756 Seward Park Ave. Seattle
C. Montgomery Johnson	Weyerhaeuser Co.	Tacoma 1,
Florence Signo		Rt.1 Box 258, Shelton
Richard T. Pressey	U.S. Fish & Wildlife	Portland, Oregon
Robert E. Faris(Mrs.)	League of Women Voters	4318 N.E. 41st.St., Seattle
H. H. Fuller	Attorney Gen. office	Seattle
C. D. Gordon	Association Wash. Ind.	Olympia
Don Dubois	Public Health Service	Portland, Ore.
Earl Kari	Public Health Service	Portland, Ore.
Sam Angeloff	Seattle P.I.	Seattle
Emil Jensen	State Dept. Health	Seattle
Al Neale	Pollution Control Comm.	Olympia
Milo Moore	Pac. Coast Oyster Growers	
Robert Bailey	Pac. Coast Oyster Growers	
R. N. Steele	Rock Point Oyster Co.	Blanchard
H. Charbonneau	Olympia Salmon Club	Olympia
M. G. Walker	Div. of Water Resources	Olympia
P. O. Thomas	Pollution Control Comm.	Olympia
Tim Malone	Attorney Gen. office	Olympia
John McEwen	Weyerhaeuser	Everett
Merrill Robison	Weyerhaeuser	Tacoma
Richard Wirtz	Longview Fibre Co.	Longview
Henry V. Channell	Rayonier, Inc.	Port Angeles
J. L. McClintock	Weyerhaeuser Co.	Cosmopolis
R. H. Bailey	Pioneer Oyster Co.	Seattle
W. R. Richardson	Crown Zellerbach	Seattle
R. C. Nelson	Crown Zellerbach	719 White-Henry-Stuart Bldg One Bush St.-San Francisco
F.W. Flynn	Crown Zellerbach	Port Angeles
Mrs. S. J. Gange	League of Women Voters	Tacoma
Nat A. Waldrip	Olympia Oyster Growers	Shelton
R. E. Westley	State Dept. Fisheries	
Roger Tollefson		Toledo, Oregon
Maxine Daly	Assoc. Wash. Industries	Olympia
L. F. Webster	State Dept. Nat'l Res.	Olympia
Kenneth H. Spies	Ore. State San. Auth.	Portland, Ore.
R. W. Hart	U.S. Public Health Ser.	San Francisco, Calif.
Murray F. Randall		520 W. 12th, Port Angeles
Austin Wyman	Local #155, I.B.P.S. & P.M.W.	
James E. Maxfield	Mayor	Port Angeles
John H. Eyer	Pulp,Sulphite, Int'l Union	
Edward J. Gruble	Hilton Seafoods Co.	1437 W. Elliott, Seattle
Bob O. Bower	Pacific Coast Oyster Growers	Rt.1 Box 123, Olympia
E. J. Ordal	University of Washington	Seattle
Mrs. G. F. Ghilarducci	League of Women Voters	Tacoma
B. Franklin Henston		Shelton
Al Livingston	Pollution Control Comm.	Olympia

APPENDIX Q-1
BILL'S RECORDING SERVICE

NAME	ORGANIZATION	ADDRESS
Curtiss M. Everts	Ore. St. San. Auth.	Portland, Ore.
Morgan S. Seal	Public Health Service	Las Vegas, Nev.
Stanley K. Knox	Pollution Control Comm.	Olympia
Oliver Malm		1201 Tacoma Bldg., Tacoma
Mr. Plaster	Inter-tribal Council,W.W. Ind.	2635 So. 226th, Des. Moines
Mrs. Marg Plaster	Sec'y " " " "	" " " " "
R. K. Gjerde	Weyerhaeuser Co.	
C. W. Bingham	Weyerhaeuser Co.	
John W. Riley	Chief Ass. Att. General	Olympia
J. W. Gregoire	Rayonier, Inc.	Seattle
Chester Biesen	Ex.Sec. Assn. Wash. Cities	U.of W., Seattle
Don Graham	Puget Sound Gill Netters Assn.	
David Milholland	Puget Sound Gill Netters Assn.	Anacortes
Al Michaels	Olympia Salmon Club	Olympia
E. L. Cliffe	Pennsalt Chemicals Corp.	Tacoma
M. T. Ramstad	Ind. Bur. Tacoma C. of C.	Tacoma
Vint Bacon	Northwest Pulp & Paper Assoc.	Tacoma
Robert D. Wildman	U.S. Atomic Energy Comm.	Richland
Arthur R. Keene	General Electric Co.	Richland
Robert O. Sylvester	Univ. of Wash-Civil Eng. Dept.	Seattle
Robert E. Leaver	State Dept. of Health	Seattle
Wilson F. Bow	State Dept. of Health	Seattle
John De Boer		Nisqually, Wash.
Lyman J. Nielson	Pollution Control Comm.	Olympia, Wn.
Don Ross	Tacoma Sewage Treatment Plant	Tacoma, Wn.
Wm. B. Morse	Wildlife Mgt. Institute	Portland
John Bronow	City of Tacoma	Tacoma
W. W. Towne	U.S. Public Health Service	Portland
J. C. Christiansen	Pollution Control Comm.	Olympia
Ray Bloomberg	McGraw Hill News Bureau	
Hayse H. Black	U.S. Public Health Service	Cincinnati, Ohio
Robert Hutchings	U.S. Public Health Service	Washington D. C.
Mrs. Ian Christopher	League of Women Voters	Olympia
Mrs. V. K. Gaudette	League of Women Voters	Olympia
Chuck Ziebell	Pollution Control Comm.	Olympia
M. L. Bidstrup	Yakima Daily Republic	Yakima
A. Kemmerich	Pacific Marine Fisheries	
John Wilson	U.S. Public Health Service	Portland, Ore.
John H. Davidson	U.S. Public Health Service	Portland, Ore.
James W. Bichsel	Hooker Chemical Corp.	P.O.Box 1646, Tacoma
James C. Cooper	West Tacoma Newsprint	Steilacoom, Washington
Harold E. Miller	Seattle Metro	Seattle
Charles V. Gibb	Seattle Metro	Seattle
George A. Holt	Rayonier	Box 539, Hoquiam
Ralph Bunnell	Weyerhaeuser Co.	4807 OB, Longview
Harold W. Fritz	Weyerhaeuser Co.	3303 Virginia Way, Longview
Bill Snodgrass	Weyerhaeuser Co.	2626 Pac. Wy., Longview
E. H. Olson	Weyerhaeuser Co.	2649 Nichols, Longview
E. F. Button	Rayonier, Inc.	Hoquiam, Wn.
R. M. Knight	Weyerhaeuser Co.	Everett
Richard E. Weir		2221 Cascadian, Everett
Edmund S. Oshetsky	Scott Paper Co.	Everett
Geo. P. Tostevin	Scott Paper Co.	Everett
Lt.Col. J. H. Harper	Corps of Engineers	Seattle

APPENDIX C-2
[illegible] RECORDING SERVICE

NAME	ORGANIZATION	ADDRESS
Ray E. Holmes	Corps of Engineers	Seattle
Mrs. E. J. Ordal	League of Women Voters	Seattle
Mrs. R. L. Edwards	League of Women Voters	Renton
J.P. Hunter	Att. for Simpson-Lee,Weyer.	302-4 1st.Nat'l Bank Bldg. Everett
W. A. Gissberg		312 1st. Nat'l Bank,Everett
Thomas H. Macbride	Attorney	2112 Wash. Bldg, Seattle
Joseph C. McKinnon	Attorney	2112 Wash. Bldg, Seattle
David B. Charlton	Charlton Lab., Inc.	P.O. Box 1048, Portland
James Myers	Thur. Co. Poggie Club	Rt. 6, Olympia
Glenn Correa	Olympia Oyster Growers	Bell Bldg, Shelton
Harold Rolfsen	State Dept. of Parks	Shelton
Keith Grimm	Attorney	1700 Wash. Bldg., Seattle
Stanley B. Long	Attorney	14th. Ft. Norton Bldg, Seattl
Carlene Church		Box 1368, Boise, Idaho
Chas. F. McDevitt	Attorney	711½ Bannock, Boise, Idaho
Lyman Ketcham	City of Tacoma	Tacoma, Wn.
H. K. Graves	Pan Amer. World Airways	Sea-Tac Airport, Seattle 88,
D. Perkins	Holman, Mickelwait etc.(att.)	1900 Wash. Bldg. Seattle
B. F. Heuston	Box 308	Shelton, Wn.
Dr. J. E. Stein	Rayonier, Inc.	Shelton, Wn.
George Hansen	Pollution Control Comm.	Yakima, Wn.
Ray Hamon	Attorney	1700 Wash. Bldg., Seattle
Lionel R. Patton		3148 S. Pear, Olympia
David C. McMillin	Olympia Oyster Growers	Shelton
Cdr. C.C. Compton	Puget Sound Shipyard	Bremerton (U.S. Navy)
C. J. Hallia	Puget Sound Shipyard	Bremerton (U.S. Navy P.W.des)
D. J. Lynch		Rt. 3 Box 472, Shelton
Daniel B. Trefethen		572 Dex-Horton Bldg. Seattle
Bill Chun	Court Reporter	8339 S.W. 14th, Portland
Ray Schrick		217 Amer.Bank Bldg. Potland
Cpt. S. N. Stevenson	Harbor Police	Seattle
W. W. Saxton	Stevens & Thompson	Seattle
R. L. Wood	City of Olympia	Olympia
C. V. Basom	Fibreboard	Port Angeles
Stanley B. Long	Fibreboard	Seattle
Arthur Pooltre	Peninsula Herald	Port Angeles
Ellis Ogilvie	5029 - 27th Ave N.E.	Seattle
R. O. Blosser	Nat'l Council Str. Imp. Ore. St.	Corvallis, Oregon
Jerald M. Hatt	I.B.P.S. & P.M.W.	Cosmopolis, Wn.
Alfred Harvson		214 So. 70th., Tacoma
D. E. Dahlgard	Box 1209 Port of Seattle	Seattle
J. E. Greenway		2746 N.E. 45th St., Seattle
David L. Hawley		2216 N.W. 56th St., Seattle
Milo Moore		2557 35th. Ave. W., Seattle
H. Holloway	Rayonier, Inc.	Shelton
Cedric E. Lindsay	State Dept. Fisheries	Brinnon, Wn.
Gilbert A. Holland	State Dept. Fisheries	Seattle, Wn.
Charles E. Woelke	State Dept. Fisheries	Brinnon, Wn.
E. G. Humble	Bremerton Water Dept.	Bremerton
Mr. Eugene E. Taylor		Shelton, Wn.
Mrs. Eugene E. Taylor		Shelton, Wn.
C. W. Fisher		Olympia
W. S. Munro		Seattle

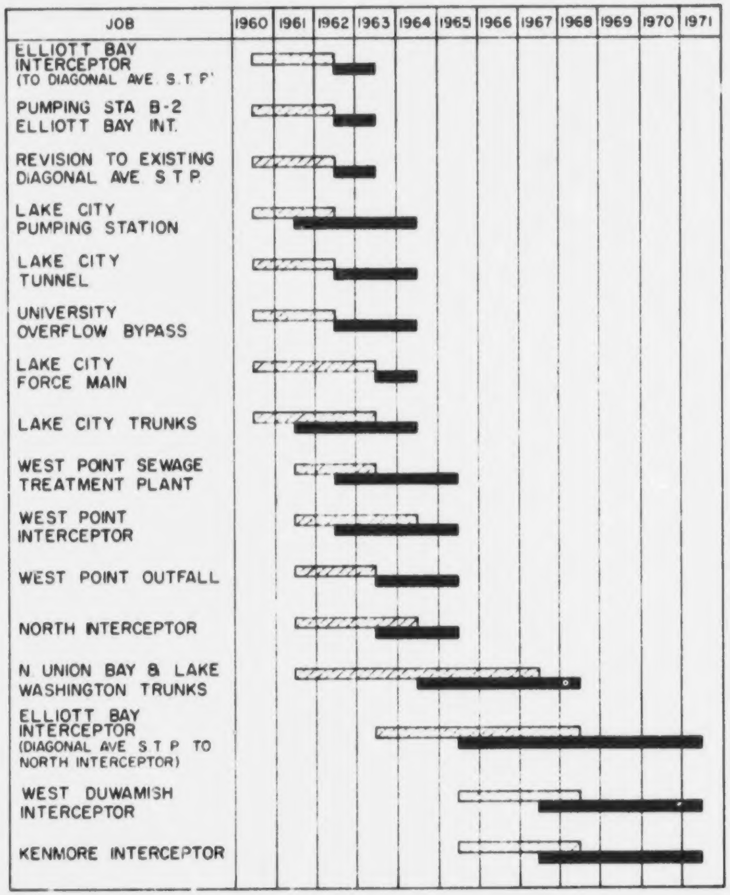
[illegible] L-3
[illegible] SERVICE

NAME	ORGANIZATION	ADDRESS
Dr. Bernard Bucove	State Dept. of Health	Seattle
Lew Holcomb	Pollution Control Comm.	Olympia
L. A. Ducommer	Attorney	2112 Wash. Bldg., Seattle
Peter G. Kile	Dept.Health,Ed. & Welfare	Washington D. C.
Joseph Rigert	Assoc. Press	Legislative Bldg, Olympia
Roxie Graham	Pollution Control Comm.	Olympia
Dorothy Ness	Pollution Control Comm.	Olympia
Sharon Barr	Pollution Control Comm.	Olympia
Pat Reilly	Pollution Control Comm.	Olympia
Ann Beigh	Pollution Control Comm.	Olympia
James P. Behlke	Pollution Control Comm.	Olympia
C. R. Ott	Pollution Control Comm.	Olympia
Don Wilson	Pollution Control Comm.	Olympia
Al Mills	Pollution Control Comm.	Olympia
Bryan M. Johnson	Pollution Control Comm.	Olympia

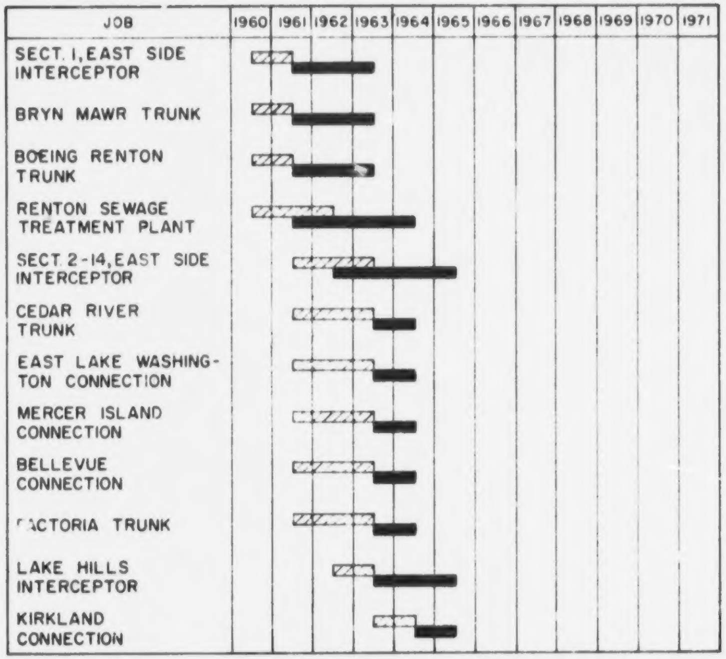
APPENDIX TO STATEMENT ON BEHALF OF
MUNICIPALITY OF METRO SEATTLE, by
Mr. Harold E. Miller

EXHIBIT A
CONSTRUCTION SCHEDULE

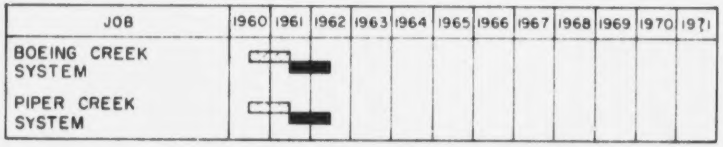
▨ DESIGN
■ CONSTRUCTION



WEST POINT SYSTEM



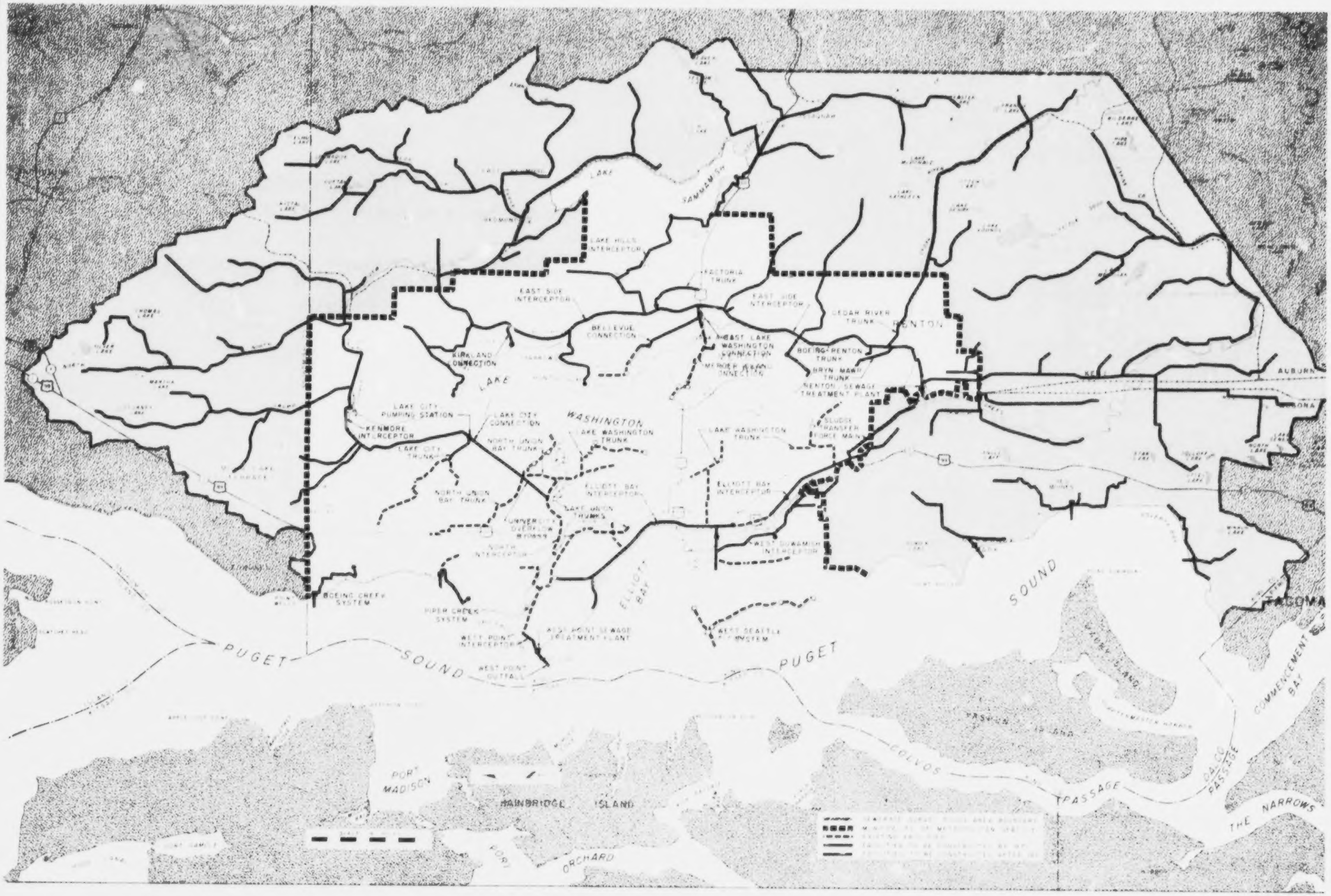
RENTON SYSTEM



SEPARATE SYSTEMS

APPENDIX A
BILL'S RECORDING SERVICE

Reproduced from best available copy.


LAKE SAMMAMISH
LAKE HILLS INTERCEPTOR
FACTORIA TRUNK
EAST SIDE INTERCEPTOR
EAST SIDE INTERCEPTOR
CEDAR RIVER TRUNK
RENTON
BELLEVUE CONNECTION
KIRKLAND CONNECTION
EAST LAKE WASHINGTON CONNECTION
MERCER ISLAND CONNECTION
BOEING-RENTON TRUNK
BRYN MAWR TRUNK
RENTON SEWAGE TREATMENT PLANT
LAKE WASHINGTON
LAKE CITY PUMPING STATION
LAKE CITY CONNECTION
KENMORE INTERCEPTOR
LAKE CITY TRUNK
NORTH UNION BAY TRUNK
LAKE WASHINGTON TRUNK
LAKE WASHINGTON TRUNK
SLUDGE TRANSFER FORCE MAIN
NORTH UNION BAY TRUNK
ELLIOTT BAY INTERCEPTOR
ELLIOTT BAY INTERCEPTOR
LAKE UNION TRUNKS
UNIVERSITY OVERFLOW BYPASS
NORTH INTERCEPTOR
WEST DUWAMISH INTERCEPTOR
BOEING CREEK SYSTEM
PIPER CREEK SYSTEM
ELLIOTT BAY
WEST POINT SEWAGE TREATMENT PLANT
WEST POINT INTERCEPTOR
WEST SEATTLE SYSTEM
WEST POINT OUTFALL
AUBURN
KENT
TACOMA
PUGET SOUND
PUGET SOUND
PORT MADISON
BAINBRIDGE ISLAND
PORT ORCHARD
VASHON ISLAND
MAURY ISLAND
COLVOS PASSAGE
DALCO PASSAGE
COMMENCEMENT BAY
THE NARROWS

MUNICIPALITY OF METROPOLITAN SEATTLE COMPREHENSIVE SEWERAGE PLAN

APPENDIX B
BILL'S RECORDING SERVICE

APPENDIX TO STATEMENT ON BEHALF OF ROCK POINT OYSTER CO., by Mr. R. N. Steele

RETURN TO OGILVIE'S
5529 27th Avenue N.E., Seattle 5, Washington

DATE OF FIRST SIGNATURE Dec. 15, 1961 DATE OF LAST SIGNATURE Dec 21, 1961

WE, THE UNDERSIGNED, wish to go on record as being in favor of enforcement of Pollution Control in the waters of the State of Washington, pertaining in particular to the paper pulp industry.

Considering the damage done to public health, fishing industries, the resort industry, sports fishing, and other activities, it is necessary that the paper pulp industry be required to comply with the regulations of the Pollution Control Commission.

NAME (print) (DOE, John H.)	SIGNATURE John H. Doe	ADDRESS (Ex.:1111 Green St., Omak, Wash)
JOSEPH W MILLER	Joseph W Miller	15405 SE 9TH, BELLEVUE, WN
MILLER, MARGARET M	Margaret M Miller	15405 SE 9th Bellevue Wash
Roger Loring	Roger L Loring	8640 116th Ave N.E. Kirkland
Loren A. Rood	Loren A Rood	Box 345, Medina
DONALD L. MICKEY	Donald L. Mickey	5117 46th N.E., Seattle 5, Wash.
Donald K. Wile	Donald K. Wile	1046 W. Lake Sammamish Pkwy, S.E. Bellevue, Wash
ERNEST HEMINGSON	Ernest Hemingson	4302 LAKE WASH. Blvd. N.E Kirkland, Wash.
Elaine Windsor	ELAINE WINDSOR	722 NO 73 Seattle 3
CONSTANTINE, Helen C	Helen C. Constantine	4609 So. 200 St, Kent, Wash.
CHARLES O TOLSTAD	Charles O Tolstad	10738 2nd NW, Seattle 77, Wash.
RE Knudsen	RE Knudsen	824 52nd N.W. Seattle
E.M. KNUDSEN	E.M. Knudsen	824 52nd NW Seattle
HALL, GLEN B.	Glen B Hall	5201-216th SW. Mount Lake Terrace, Wash

APPENDIX A1
BILL'S RECORDING SERVICE

RETURN TO OGILVIE'S
5529 27th Avenue N.E., Seattle 5, Washington

DATE OF FIRST SIGNATURE Dec. 15, 1961   DATE OF LAST SIGNATURE Dec. 26, 1961

WE, THE UNDERSIGNED, wish to go on record as being in favor of enforcement of Pollution Control in the waters of the State of Washington, pertaining in particular to the paper pulp industry.

Considering the damage done to public health, fishing industries, the resort industry, sports fishing, and other activities, it is necessary that the paper pulp industry be required to comply with the regulations of the Pollution Control Commission.

NAME (print) (DOE, John H.)	SIGNATURE John H. Doe	ADDRESS (Ex.:1111 Green St., Omak, Wash)
Grace H. Hatcher	Grace H. Hatcher	7724-16th Ave. N.E. Seattle 15. Wash
LEO BERMAN.	Leo Berman	7738-16th N.E. Seattle 15-Wn
CLARA BERMAN	Clara Berman	" " " "
Everett Mosman	Everett Mosman	518 N 195th St Seattle 33 Wash
Ina A. PERCIVAL	Ina A. Percival	7731 16th N.E. Seattle Wn
T. Percival	Robt Percival	7732-16th N.E. Seattle
Clara Lindquist	[illegible] Lindquist	825 NE 81 st. Seattle
Douglas K. Bement	DOUGLAS K. BEMENT	2735- N.E. 74th SEATTLE, 15
Betsy Lee Mahi	Betsy L. Mahi	7722 16th N.E. Seattle, 15
William BARTEL	William [illegible]	7704 16th NE Seattle
Margaret L. Bartel	MARGARET L BARTEL	7704-16th NE Seattle 15
Grace Haug	GRACE HAUG	7742 16 NE Seattle Wn.
Mary Burns	Mary E. Burns	7732-16th N.E. Seattle-15. 5-ne
Gloria Bement (Gloria Bement)	Gloria Bement	2735 N.E. Seattle 15, Wash.
Robert L. Matthews	Robert L. Matthews	4102 - 2nd N.W. Seattle 7
Cora B. Matthews	Cora B. Matthews	8240 - 19th Ave. N.E., Seattle 15
ROSS R. MATTHEWS	Ross R. Matthews	8240 " " "
Irene Matthews	Irene Matthews	4102 - 2nd N.W.
DANIEL A. STIETZER	Da. Stietzer	13218 Edgewater Lane - Seattle 55
Emile Lowary	Emil A Lowary	7725-17th Ave NE Seattle 15
IVAN M LOWARY	Ivan M. Lowary	7725-17th Ave NE Seattle 15

APPENDIX A2
BILL'S RECORDING SERVICE

RETURN TO OGILVIE'S
5529 27th Avenue N.E., Seattle 5, Washington

DATE OF FIRST SIGNATURE 12-18-61 DATE OF LAST SIGNATURE 12/18/61

WE, THE UNDERSIGNED, wish to go on record as being in favor of enforcement of Pollution Control in the waters of the State of Washington, pertaining in particular to the paper pulp industry.

Considering the damage done to public health, fishing industries, the resort industry, sports fishing, and other activities, it is necessary that the paper pulp industry be required to comply with the regulations of the Pollution Control Commission.

NAME (print) (DOE, John H.)	SIGNATURE John H. Doe	ADDRESS (Ex.: 1111 Green St., Omak, Wash)
EDWARD J GRUBLE	Edward J Gruble	8022 Fauntlee Crest S.W.
Merritt, Evelyn	Evelyn Merritt	314 N.W. 72 St.
EDGAR SHARPE	Edgar Sharpe	2602 4th ave.
William Joseph	William Joseph	
EllеN NoKes	Ellen Nokes	2120 S.W. 104th
Mildred Goddard	Mildred Goddard	12864- 3rd So.
ZOFIA KRZESZOWSKI	Zofia Krzeszowski	2308-15 W
Elizabeth MacKeeley	Elizabeth MacKeeley	10627-25th SW.
EVELYN M SULLIVAN Evelyn M Sullivan		5507-9th ave NW.
SYLVIA MILLER Sylvia Miller		2311½ Eastlake
DELORES TURNER	Delores Turner	2124 S.W. 104th
IRIS. DICKINSON	Iris Dickinson	1402 S.W. 102nd.
DELFOSS ANN	Anna M. Delfoss	504 Lee Street
VLADIMIR MERCLICH	Vladimir Merclich	3244-31st. Ave. W.
ERNEST SUNDLING	Ernest Sundling	1953 Queen Anne N zone 9
Harold Engelsen ~~Harold Engelsen~~	Harold Engelsen	8816-26 Ave N.W.
DOLPHIN, WILLIAM V.	William V. Dolphin	5005 208 S.W. Lynnwood.
M.B. DODGE M.B. Dodge		2512 So. Tacoma ave Tacoma.
Larry Betzing	LARRY BETZING	1108 8th ave Seattle
PARADOSKI, EDWARDS	Edward Paradoski	77 Washington Seattle

APPENDIX a3
BILL'S RECORDING SERVICE

RETURN TO OGILVIE'S
5529 27th Avenue N.E., Seattle 5, Washington

DATE OF FIRST SIGNATURE 12-20-61 DATE OF LAST SIGNATURE 12-23-61

WE, THE UNDERSIGNED, wish to go on record as being in favor of enforcement of Pollution Control in the waters of the State of Washington, pertaining in particular to the paper pulp industry.

Considering the damage done to public health, fishing industries, the resort industry, sports fishing, and other activities, it is necessary that the paper pulp industry be required to comply with the regulations of the Pollution Control Commission.

NAME (print) (DOE, John H.)	SIGNATURE John H. Doe	ADDRESS (Ex.: 1111 Green St., Omak, Wash)
JoAnn S Wihrman	JoAnn S. Wihrman	10435 - 14th So, Seattle.
Richard K. Beemer	Richard K. Beemer	4622 Viburnum Ct. So. Seattle
H~~[illegible]~~		
Roberts. Haywood A	Haywood A Roberts	1837 - 26 - Av. Seattle.
Ray A. Esgate	Ray A Esgate	11925 Salmon Way S.W.
VIANA PAULSON	Viana Paulson	121 - N. W. 75th St
R.J. Paulson	R.J. Paulson	121. N.W. 75 St
D.W. Boettcher	D.W. Boettcher	7904 159 SW Edmonds Wash
ROBERT A WOOD	Robert A Wood	105½ P[illegible]
GUY NOBLE	Guy Noble	507 - 3rd Ave. Seattle - 4 - Wash.
Walter E. Barbee	Walter E. Barbee	718 - 21st. Ave.
Robert M Davenport	DA-6-2059 ROBERT M. DAVENPORT	MAY Valley Co-OP Community & Preserve - Renton, Wash
William A. Albrecht	William A. Albrecht	14710 - 26th - NE
JOSEPH F BYRNES Joseph F Byrnes	Joseph F Byrnes	16230 - 6th N.E
Mrs L.C. Hansen	Joanne M. Hansen	18803 Pac. Hwy. S.
L C HANSEN	L C Hansen	18803 Pac Hwy So.
A. C. Burtness	A C Burtness	4116 - E Edgewater Pl.
R.R. BURKEY	R.R. Burkey	1716 - 31st Ave W. Seattle,
Henry Janish	Henry Janish	5238 Admiral Way
E.W. Rittler E. W. Rittler	E.W. Rittler	5435 - 36 - S.W. Seattle 6 Wn

APPENDIX A4
BILL'S RECORDING SERVICE

RETURN TO OGILVIE'S
5529 27th Avenue N.E., Seattle 5, Washington

DATE OF FIRST SIGNATURE 12-13-61 DATE OF LAST SIGNATURE 12-20-61

WE, THE UNDERSIGNED, wish to go on record as being in favor of enforcement of Pollution Control in the waters of the State of Washington, pertaining in particular to the paper pulp industry.

Considering the damage done to public health, fishing industries, the resort industry, sports fishing, and other activities, it is necessary that the paper pulp industry be required to comply with the regulations of the Pollution Control Commission.

NAME (print) (DOE, John H.)	SIGNATURE John H. Doe	ADDRESS (Ex.:1111 Green St., Omak, Wash)
Chas. L. Umphlette	Chas. L. Umphlette	2807-22nd W. Seattle
Floyd B. Stull	Floyd B. Stull	414 W McGraw - Seattle
FRANK W. OTTERSBACH	Frank W. Ottersbach	6907 - 55TH SOUTH. SEATTLE
FRANK FEIN	Frank Fein	2571-27th Ave. West Seattle
Orion E. Colver	Orion E. Culver	Rt 1 Box 411 Poulsbo, Wn
Gus Danielson	Gus Danielson	Mercer Island Wn.
Leonard C. Anderson	Leonard C. Anderson	20513 Richmond Rd., Bothell, Wn.
DUBOIS JOSEPH	Joseph Du Bois	2546 30th West
DORIS SIERER	Doris Sierer	13229 Woodinville - Redmond Rd Redmond, Wn
RUSSELL C. JOHNSON	Russell C. Johnson	706-4th Ave Seattle 4, Wn.
Arthur Schroeder	ARTHUR SCHROEDER	seattle 44. 525 Empire So
ROSE MARIE JOHNSON	Rose Marie Johnson	Route 1 Box 477 - Duvall
ALVIN O. WHALEN	Alvin O. Whalen	119 E. 64th Seattle
FELIX ROSENBAUM	Felix Rosenbaum	1132 - 28th AVE SEATTLE
FRED M. PRICE	Frederick M Price	114 Madrona Pl. E.
ARTHUR WADDELL	Arthur Waddell	1600 - 72 S.E. Mercer Is. Wn
James Hutchins	James Hutchins	2908 - 13th Ave. So. Seattle
John Mitton	John Mitton	3408 Lafayette Ave So.
HAROLD D LINDQUIST	Harold D Lindquist	12220 Military Rd Seattle 88
M W Vandercook	M W Vandercook	7740-20th N.E. Seattle

APPENDIX a5
BILL'S RECORDING SERVICE

RETURN TO OGILVIE'S
5529 27th Avenue N.E., Seattle 5, Washington

DATE OF FIRST SIGNATURE Dec. 22, 1961 DATE OF LAST SIGNATURE Dec. 28, 1961

WE, THE UNDERSIGNED, wish to go on record as being in favor of enforcement of Pollution Control in the waters of the State of Washington, pertaining in particular to the paper pulp industry.

Considering the damage done to public health, fishing industries, the resort industry, sports fishing, and other activities, it is necessary that the paper pulp industry be required to comply with the regulations of the Pollution Control Commission.

NAME (print) (DOE, John H.)	SIGNATURE John H. Doe	ADDRESS (Ex.: 1111 Green St., Omak, Wash)
Vincent J. Brings	Vincent J. Brings	1638-104th S.E. Bellevue Wn
Roscoe E Wright	Roscoe E. Wright	206 8th Ave No., Edmonds Wn
Robert M. Johnson ~~Robert M John~~	Robert M. Johnson	1021 N. 50th ST., Seattle, WASH.
Anne T. Johnson	Anne T. Johnson	1021 N. 50th Seattle 3, Wash
Milton C. Collins	Milton C. Collins	938-20th Ave Ea Seattle 2,
Richard C. Buchanan ~~Richard C Buchanan~~	Richard C. Buchanan	6603-183rd SW, Lynnwood, Wash
ANNE V RENNIE	Anne V Rennie	3212- 40th West, Seattle, Wn
JAMES A. WEHMEYER	James A. Wehmeyer	161 165 Ave N E. Bellevue, Wn.
GRACE KENT	Grace Kent	8009 Brooklyn NE Seattle 15 Wash.
PAUL R. NELSON	Paul R Nelson	4228 FIRST AVE. N.E. Seattle 5,
Patrick T. Kirk	Patrick T. Kirk	1025 N 50th, Seattle 3, Wn
Jacquelyn Gerike	Jacquelyn Gerike	1031 N. 50th Seattle 3, Wash
JOHN GERIKE	John Gerike	" " " "

APPENDIX A6
BILL'S RECORDING SERVICE

RETURN TO OGILVIE'S
5529 27th Avenue N.E., Seattle 5, Washington

DATE OF FIRST SIGNATURE Dec 23-61 DATE OF LAST SIGNATURE ____________

WE, THE UNDERSIGNED, wish to go on record as being in favor of enforcement of Pollution Control in the waters of the State of Washington, pertaining in particular to the paper pulp industry.

Considering the damage done to public health, fishing industries, the resort industry, sports fishing, and other activities, it is necessary that the paper pulp industry be required to comply with the regulations of the Pollution Control Commission.

NAME (print) (DOE, John H.)	SIGNATURE John H. Doe	ADDRESS (Ex.:1111 Green St., Omak, Wash)
Biddle, Arthur S.	Arthur S. Biddle	1670 Broadmoor Dr. E.
Buckley, Evelyn	Evelyn Buckley	808 N. 47th
Buckley, Merton	Merton Buckley	808 N. 47th
Besh, Forest C.	Forest G. Besh	7343 Alonzo N.W.
JOHNSON, LEE	Lee G. Johnson	174 Ward St.
Riley, Austin E.	Austin E. Riley	19516 Linden Ave N Seattle 33 Wash.

APPENDIX a7
BILL'S RECORDING SERVICE

RETURN TO OGILVIE'S
5529 27th Avenue N.E., Seattle 5, Washington

DATE OF FIRST SIGNATURE 27-DEC-1961 DATE OF LAST SIGNATURE 30-DEC-1961

WE, THE UNDERSIGNED, wish to go on record as being in favor of enforcement of Pollution Control in the waters of the State of Washington, pertaining in particular to the paper pulp industry.

Considering the damage done to public health, fishing industries, the resort industry, sports fishing, and other activities, it is necessary that the paper pulp industry be required to comply with the regulations of the Pollution Control Commission.

NAME (print) (DOE, John H.)	SIGNATURE John H. Doe	ADDRESS (Ex.:1111 Green St., Omak, Wash)
EGBERT, Ruby E.	Ruby E. Egbert	1821½ Water St., Olympia, Wash
Sargent, Berniece	Bernice Sargent	2201 S Water St, Olympia Wash.
~~Margaret McKenny Margaret~~	~~Margaret M. Smith~~	~~[illegible]~~
McKenny, Margaret	Margaret McKenny	2201½ S Water, Olympia
Stephens, EA	Mrs Earl Stephens	Rt 1 Box 106 Olympia Wash
STAMEY VIETTA	Vietta L. Stamey	Rt 1-Box 317-H- Olympia
Mark Stamey	Mark Stamey	Rt 1 Box 317 H Olympia.
Dorf Jones Dof Jones	Dof Jones	Rt 5 Box 249 Olympia
Kathleen Browning	KATHLEEN BROWNING	3129 S. Hoadley Rd. "
BEEBE ALLAN	Allan Beebe	B+29 Rochester
Angelica Honey Angelica Honey	Angelica Honey	225 E Lee St Tumwater
JAMES E. DEWEY	James E. Dewey	Rt 10 Box 779, Oly, Wn.
~~[illegible]~~	~~[illegible]~~	~~[illegible]~~
Charles B. Roe Jr	Charles B Roe Jr.	3370 So. Pear Olympia, Wash
~~Sally J. Savage~~	~~Sally Savage~~	~~4011 Southgate Ave, Tumwater~~
~~Savage, Patsy J.~~	~~Patsy J. Savage~~	~~" "~~
Savage June E.	June E. Savage	4011 Southgate Ave.; Tumwater
Joseph Dvorak, Jr. Joseph Dvorak, Jr.		Rte. 3. Box 429 Olympia -
VENUS DVORAK	Venus Dvorak	R.R. 3 Box 429 Olympia, Wn.
~~[illegible]~~ Charles H. Williams	~~Charles H. Williams~~	
Lucy D. Williams ~~Mr Charles H. Williams~~	Lucy D Williams	826 Percival St. Olympia
Mrs Jack Kisor	Mrs Jack Kisor	1322 W 7th
PUNDERSON, DOROTHY M.	Dorothy M. Punderson	3201 Martin Way Olympia
KISOR Leota Otis	Leota Otis Kisor	Route 8 - Box 94 "
GRANACKI FRANK J.	Frank J. Granacki	2521 Lincoln st "
LOCKWOOD, CALVIN R.	Calvin R. Lockwood	1501 E. 4th Ave. Olympia
LOCKWOOD, RACHEL	Rachel Lockwood	1501 E. 4th Olympia

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RETURN TO OGILVIE'S
5529 27th Avenue N.E., Seattle 5, Washington

DATE OF FIRST SIGNATURE 12/29/61 DATE OF LAST SIGNATURE 12/29/61

WE, THE UNDERSIGNED, wish to go on record as being in favor of enforcement of Pollution Control in the waters of the State of Washington, pertaining in particular to the paper pulp industry.

Considering the damage done to public health, fishing industries, the resort industry, sports fishing, and other activities, it is necessary that the paper pulp industry be required to comply with the regulations of the Pollution Control Commission.

NAME (print) (DOE, John H.)	SIGNATURE John H. Doe	ADDRESS (Ex.: 1111 Green St., Omak, Wash.)
Dave Clinton	Dave Clinton	Olympia, Wash. R.1. Box 72
J.K. Moore	J.K. Moore	306 Hensley Ave. Olympia, Wn.
C.L. HAXTON	C.L. Haxton	419 CUSTER WAY, OLYMPIA, Wn
E.T. HYNDMAN E.T. Hyndman	E.T. Hyndman	201 Simmons St. Oly
Victor F DeGarmo	Victor F DeGarmo	1914 Cap. Way Oly., Wash
CARL A SOLENES	Carl A Solenes	1735 Springwood Ave Oly Wn
George R. Ames	George R. Ames	Rte. 3 Box 128 A Oly Wn.
Harold Sparger	Harold Sparger	Rt 1 Box 409 A Oly Wn
HAROLD L. NELSON	Harold L. Nelson	603 Sansome Olympia
Sorensen, Paul J.	Paul J. Sorensen	1401 So. Eastside St. Oly.
EUGENE W. PRINE	Eugene W. Prine	Rte 3 - Bx 435 Oly.
RAY C. LAMM	Ray C. Lamm	2106 SO. FIR OLY.
C H Abbott	C.H. ABBOTT	4707 - Beach Tumwater
VERLE A. NEELY	Verle A. Neely	1120 GOLF CLUB RD OLY. WN.
Brennan Lee	Lee Brennan	Rt #4 Olympia Wash
K.S. Baldwin	K.S. BALDWIN	200 DIVISION ST TUMWATER WN.
F.H. Zollman	Frank H. Zollman	3309 S. PEAR OLYMPIA
Kenneth Noffsinger	Kenneth Noffsinger	Rt 4 Bx 482 Olympia Wn
John Kerr	John Kerr	Rt 3 Box 504 Oly.
EARL L. SIMMONDS		1603 S. Wilson, Olympia, Wash.

APPENDIX a9
BILL'S RECORDING SERVICE

RETURN TO OGILVIE'S
5529 27th Avenue N.E., Seattle 5, Washington

DATE OF FIRST SIGNATURE 12/29/61 DATE OF LAST SIGNATURE 12/29/61

WE, THE UNDERSIGNED, wish to go on record as being in favor of enforcement of Pollution Control in the waters of the State of Washington, pertaining in particular to the paper pulp industry.

Considering the damage done to public health, fishing industries, the resort industry, sports fishing, and other activities, it is necessary that the paper pulp industry be required to comply with the regulations of the Pollution Control Commission.

NAME (print) (DOE, John H.)	SIGNATURE John H. Doe	ADDRESS (Ex.:1111 Green St., Omak, Wash)
Fred B. Towle ~~Fred B. Towle~~	Fred B. Towle	116 E 21st Olympia, Wn.
Johnson Terral H	Terral Johnson	1915 So Steele St
SHIRELL D. ADAMS	Shirell D. Adams	322 WEST D ST. TUMWATER WN.
HOWELL FRED W	Fred W. Howell	4702 Delta Lane Tumwater
DANIEL PEARSON	Daniel H Pearson	1916 Allen Rd. Olympia
Al SPRENGEL	Al Sprengel	1515 West 8th Olympia
Lawton Lawrence W.	Lawrence W Lawton	923 [illegible] St Oly.
WEATHERDIE ALVIN R	Alvin R Weatherdie	920 So Frederick Oly Wash.
FARR Del	Del Farr	719 - Box 7 Olympia
HALL - R. M	R M Hall	531 Gov Stevens Olympia
Tibbetts Melvin A	Melvin A Tibbetts	Rt 4 Bx 397 Olympia.
MEYER CHARLES	Charles Meyer	2732 Capt. Blvd OLY
Hetherington frank	Frank Hetherington	R1 Box 447-F Olympia Wn
Thomas J. FINNEGAN	Thomas J. Finnegan	Box 85 LACEY, Wash
JACOBSON, KENNETH M.	Kenneth M Jacobson	1127 BOONE St. OLYMPIA, Wn.
PETERSON, JULIUS M.	J. M. Peterson	2434 So. Columbia, Olympia
Albert H Merz	Albert H Merz	1857 Miller Ave Olympia
Horton Gilbert	Gilbert Horton	Rt 2 Box 233 D
DICKMAN GEORGE	George Dickman	809 No. Marion Oly.
H. E. King	H. E. King	1911 - Columbia St. Olympia

APPENDIX A10
BILL'S RECORDING SERVICE

RETURN TO OGILVIE'S
5529 27th Avenue N.E., Seattle 5, Washington

DATE OF FIRST SIGNATURE 12-27-61 DATE OF LAST SIGNATURE 1-1-62

WE, THE UNDERSIGNED, wish to go on record as being in favor of enforcement of Pollution Control in the waters of the State of Washington, pertaining in particular to the paper pulp industry.

Considering the damage done to public health, fishing industries, the resort industry, sports fishing, and other activities, it is necessary that the paper pulp industry be required to comply with the regulations of the Pollution Control Commission.

[illegible] (print) (DOE, John H.)	SIGNATURE John H. Doe	ADDRESS (Ex.:1111 Green St., Omak, Wash)
ENNIS C. YOUNG	Ennis C. Young	7742-15th Ave N.E. Seattle.
YOUNG JANE E	Jane E. Young	7742-15th N.E. Seattle
J.H. Ebersole	J. A. Ebersole	6529 19th N.E. Seattle
Jones William E	Wm E Jones	7746-18th N.E. Seattle
Morrisey Chas J.	Charles J Morrisey	3008-45th S.W. Seattle
Russell Bradburn	RUSSELL BRADBURN	614 W. GARFIELD, Seattle
LADDIE A. ASTARP	Laddie Agterp	341 North 102, 33, Seattle
LARRY VOEKS	Larry Voeks	16525 Linden Av Sea Wn
Theodore R. Weber	Theodore R. Weber	6056-39 N.E. Seattle 5, Wn
DENNIS P HUNTLEY	Dennis P Huntley	6276-21st N.E. SEATTLE
JOHN J McAVOY	John J McAvoy	311-W GARFIELD SEATTLE
CHARLOTTE BICKFORD	Charlotte Bickford	343 N.E. 170th Sea. 55,
Anita L. Bullo	Anita L Bullo	1704 No. 40th Sea 3, Wn.
FRANK ROELL	Frank Roell	2128 No 89 Seattle 3
W R MCHARGUE W. R McHargue	W. R. McHargue	1218-N-E 98 Seattle
Carl D. Bullo	Carl D. Bullo	1704 No. 40th Seattle 3,
Frank R. Roeder	Frank R. Roeder	19515 Linden Ave. N. Seattle 33
John N. Rognan	John N. Rognan	12321-22nd N.E. Sea 55, Wash.
LAURA PIRKUT	Laura Pirkut	17308-35th Alderwood Manor
C.E. Shelton	C.E. Shelton	350 N.W. 77 Seattle
Irene F. Cole	Irene F. Cole	13509 Wallingford Ave N.-Seattle
John E Bullo	JOHN E. BULLO	-145-NE 51st Seattle 5

APPENDIX C-11
BILL'S RECORDING SERVICE

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RETURN TO OGILVIE'S
5529 27th Avenue N.E., Seattle 5, Washington

DATE OF FIRST SIGNATURE 12/29/61 DATE OF LAST SIGNATURE ____________

WE, THE UNDERSIGNED, wish to go on record as being in favor of enforcement of Pollution Control in the waters of the State of Washington, pertaining in particular to the paper pulp industry.

Considering the damage done to public health, fishing industries, the resort industry, sports fishing, and other activities, it is necessary that the paper pulp industry be required to comply with the regulations of the Pollution Control Commission.

NAME (print) (DOE, John H.)	SIGNATURE John H. Doe	ADDRESS (Ex.: 1111 Green St., Omak, Wash)
ARTHUR R WINDER	Arthur R[illegible]	11512 - 1st Ave NW SEATTLE
ALVHILD WINDER	Alvhild Winder	11512 - 1st N. W., Seattle 77
FAYE M. Ogilvie	Faye M. Ogilvie	5529 - 27 ave. N.E. Seattle 5,
JOHN J. DOOLEY.	John J. Dooley.	7548 - 20 Ave N.W. Seattle 7.
MIRIAM E. DOOLEY	Miriam E Dooley	7548 - 20th N.W. Seattle 7
GLEN STRAIT	Glenn Strait	321 — NW 7[illegible] - Seattle 7
George B. Fountain	George B. Fountain	2609 - N.W. 57th Sea. 7.
Edgar Jordan	Edgar Jordan	8535½ Greenwood Seattle, Wash.
H. Dalaba —	Haakon Dalaba.	6008. 35th PL. N.W. Seattle
Ogilvie Ellis H	Ellis Ogilvie	5529 - 27th ave N.E. Seattle 5

RETURN TO OGILVIE'S
5529 27th Avenue N.E., Seattle 5, Washington

DATE OF FIRST SIGNATURE 12-29-61 DATE OF LAST SIGNATURE 12/29/61

WE, THE UNDERSIGNED, wish to go on record as being in favor of enforcement of Pollution Control in the waters of the State of Washington, pertaining in particular to the paper pulp industry.

Considering the damage done to public health, fishing industries, the resort industry, sports fishing, and other activities, it is necessary that the paper pulp industry be required to comply with the regulations of the Pollution Control Commission.

NAME (print) (DOE, John H.)	SIGNATURE John H. Doe	ADDRESS (Ex.: 1111 Green St., Omak, Wash)
Connell ALFRED	Connell Alfred	2718 Galloway, Oly.
Bridenback Ray	Bridenbach Ray	RT 10 BOX 190 Olympia
HIGGINS, DWAIN. T.	Dwain T. Higgins	Rt. #2 Box 47B. OLYMPIA, WN.
Dietz Alfred D.	Alfred D Dietz	2317 So. Fir st. Olympia, Wn
JACK HOMANN	Jack Homann	807 Ranger Drive oly, wn
Dieckmeier Frederick	Frederick H. Dieckmeier	1018 So. Fir, Olympia, Wn.
Lindsay, W. S.	[illegible]	[illegible] Olympia
Clouse, Freeman C.	Freeman C. Clouse	Rt. 7 BOX 219 Olympia, Wn.
Jim Cahill	James Cahill	Rt. 10 Box 187 Oly Wn.
Roessner Louis A.	Louis A Roessner	Rt 7 Bx. 393 Oly. Wn.
NORMAN V. SANFORD	Norman V. Sanford	314 No. Foote St. Oly WASH.
E. M. Payne	E. M. Payne	1003 Nth Lilly Rd. Oly. Wn.
William R. Cahill	William R. Cahill	Rt 3 Box 615 Olympia, Wash.
LASLEY WARNER	Lasley Warner	RT 6 BOX 122 OLY. WN.
Wimmer Donald K.	Donald K. Wimmer	3226 Handley oly. Wn
Triebel, Walter	Walter Triebel	Rt 1 Box 283 Oly.
BRUER GEORGE	George Bruer	P.O. BOX 1021 OLYMPIA-WASH
Juhl, Marion B.	Marion B. Juhl	Rt #1, Box 100; Olympia, Wash.
MANNING Robert W.	Robert W. Manning	4500 Martin way Olympia Wash
Elba Jensen	Elba Jensen	1524 E 4th OLY
Jarrell, Albert H.	Albert H. Jarrell	1706 West 8th Ave Olympia Wash

APPENDIX a13
BILL'S RECORDING SERVICE

RETURN TO OGILVIE'S
5529 27th Avenue N.E., Seattle 5, Washington

DATE OF FIRST SIGNATURE 12-29-61 DATE OF LAST SIGNATURE 12-31-61

WE, THE UNDERSIGNED, wish to go on record as being in favor of enforcement of Pollution Control in the waters of the State of Washington, pertaining in particular to the paper pulp industry.

Considering the damage done to public health, fishing industries, the resort industry, sports fishing, and other activities, it is necessary that the paper pulp industry be required to comply with the regulations of the Pollution Control Commission.

NAME (print) (DOE, John H.)	SIGNATURE John H. Doe	ADDRESS (Ex.:1111 Green St., Omak, Wash)
Wiseman, Paul W.	Paul W. Wiseman	115 E. 18th Olympia Wash
HOFFMAN, MILDRED E	Mildred E. Hoffman	16 Fulton, Seattle 9, Wn
ISRAEL, LEON	Leon Israel	5081-57TH So., SEATTLE 18, WN.
Scl. baKKE, Robert W	[illegible]	1909½ [illegible] Seattle 44, Wn
HARMANSON, MILDRED	Mildred Harmanson	1102-8th Ave, Seattle, Wn
Sullins Muryel Evangeline	Muryel Evangeline Sullins	5441 Windermere Rd, Seattle 5 Wash
DEUTER, CAROLYN L	Carolyn L Deuter	934-18th Ave Seattle 22 Wn
KLEINBERGS ANDRIS	A. Kleinbergs	6303-17th NE SEATTLE 15. Wn.
PEFFALL GEORGE	G. H. Peffall Jr.	1504 CALIFORNIA AV. Seattle 16
Helen M Fletcher	Helen M. Fletcher	203 W Comstock apt 12 Seattle
BILL RUETER Jr	Wm Rueter Jr	25136-116 SE KENT WASH
BROWN, JACK H.	Jack H. Brown	2408 N. WASH, TACOMA 7, WASH
BOX, MARILYN	Marilyn R. Box	12002 FREMONT AVE N. SEATTLE
Gothrie, Carol	Carol Guthrie	13357-30 NE Seattle 55
EARL ST. AUBIN	Earl St Aubin	5609 234 S.W MOUNTLK TERR.
Buller, Herbert J	Herbert Buller Jr.	216 E. Roanoke St Seattle 2 Wn.
ANDERSEN, WILLIAM M.	William M. Andersen	7531-20th N.E. Seattle 15
FROBERG, HELEN A	Helen A Froberg	2211-4th Ave. No. Seattle 9
Shultz, Frances D.	Frances D. Shultz	5002 Green Lake Way North Seattle 3, Wn
GIBBS, BRUCE C	Bruce C Gibbs	16049-34th N.E. Seattle

RETURN TO OGILVIE'S
5529 27th Avenue N.E., Seattle 5, Washington

DATE OF FIRST SIGNATURE 12-31-61 DATE OF LAST SIGNATURE Jan. 10, 1962

WE, THE UNDERSIGNED, wish to go on record as being in favor of enforcement of Pollution Control in the waters of the State of Washington, pertaining in particular to the paper pulp industry.

Considering the damage done to public health, fishing industries, the resort industry, sports fishing, and other activities, it is necessary that the paper pulp industry be required to comply with the regulations of the Pollution Control Commission.

NAME (print) (DOE, John H.)	SIGNATURE John H. Doe	ADDRESS (Ex.: 1111 Green St., Omak, Wash)
Ramm, Virginia	Virginia G. Ramm	5516 University Way N.E. Seattle 5
ITTNER, RUTH	Ruth Ittner	815 W Olympic Place Seattle 99
McKeag, James	James E. McKeag	7429 - N.E. 129th. KIRKLAND, Wash
Olson A.W.	Archie W. Olson	11048 SE 182nd Renton
Rongerude, Melvin G.	Melvin G. Rongerude	5027 18th NE Seattle Wash.
FERGUSON, STUART	S. Stuart Ferguson	5202 35th S.W. Seattle Wash
JOHN PENBERTHY John Penberthy	John [illegible]	511 No C. TACOMA
[illegible], VANCE	[illegible] Vance	[illegible]
Charles T. Wheeler	Charles T. Wheeler	Rt 8 Box 50 Olympia
J.R. CHILCOAT	J R Chilcoat	509 Rangeview Olympia
Harry M. Fisher	Harry M. Fisher	Rt. 2 Box 49FF Olympia
William H. Bigelow	Wm H. Bigelow	Rt. 1 Box 42 Olympia, Wash.
Merrill thompson	Merrill Thompson	4520 Elizabeth Oly Wn.
J.M. BURKHART	J M Burkhart	3146 S Moore, Olympia Wn
[illegible] S. [illegible]	[illegible] S. [illegible]	[illegible] S. Plymouth
Gilbert J. Frederick	Gilbert J Frederick	Rt 6 Box 289-A Olympia, Wn
Jack GRAHAM	Jack Graham	3025 BAtes Olympia, Wn
Eugene T. DOLAN ~~Eugene T Dolan~~	Eugene T Dolan	404 Wildcat Drive Olympia
ARTHUR L. NATHAN	Arthur L. Nathan	2926 Hawthorne Place, Olympia
GLENN LAFAVE	Glenn LaFave	2014 Golf Club Rd Olympia

RETURN TO OGILVIE'S
5529 27th Avenue N.E., Seattle 5, Washington

DATE OF FIRST SIGNATURE 12/29/61 DATE OF LAST SIGNATURE 1/2/62 ✓

WE, THE UNDERSIGNED, wish to go on record as being in favor of enforcement of Pollution Control in the waters of the State of Washington, pertaining in particular to the paper pulp industry.

Considering the damage done to public health, fishing industries, the resort industry, sports fishing, and other activities, it is necessary that the paper pulp industry be required to comply with the regulations of the Pollution Control Commission.

NAME (print) (DOE, John H.)	SIGNATURE John H. Doe	ADDRESS (Ex.:1111 Green St., Omak, Wash)
Steger George J.	George J. Steger	9710-41st Ave So. Sea.
Barto, Tom J.	Tom J. Barto	7435-E Mercer Way, Mercer Island Wn.
W R LAMIE	Wm R. LaMie	1707 Bellevue city
WALTON ROY	Roy Walton	2710-49th S.W. Seattle 16 Wash
TORU ARAKI	Toru Araki	839-So. Elmgrove St Seattle
Mitsugi Noji	Mitsugi Noji	5710-32 Ave So. "
DONALD L. GEARWOOD	Donald L. Gearwood	7713-Lakeridge Dr. S.
Tom Henderson	J. Thomas Henderson	5215 S. Holly st
~~D. [illegible]~~		
D.E. ALEXANDER	D E Alexander	10603 19th S Seattle
Harold Roberts	Harold Roberts	431-25th AVE So Seattle
Henry C Stenswold	Henry C Stenswold	6053 31st N E Seattle
Yoshioka, Juro	[illegible] Yoshioka	2602-21st So Seattle
Ray Roulst	Ray Roulst	4723-Bond St Seattle
Fitzsimons Robert J.	R J Fitzsimmons	3233 N.E. 98th Street
C.K. LORD ~~C. A. Lord~~	~~K. A. Lord~~ ~~2111-11 W~~	2111-11 W
L. W. AUGUSTIN	L.W. Augustin	8244-22 pl. N. E.
LEO GIUNTOLI	Leo Giuntoli	3057-Belvidere SW - Seattle
S. Billee Yoshioka S. Billee Yoshioka	S. Billee Yoshioka	2602-21st So. Seattle
George L. Weymouth George L. Weymouth	George L. Weymouth	2323 S. W. 112th Seattle
SATORU DALE SUGITA	Satoru Dale Sugita	12826-3rd So. Seattle 88

RETURN TO OGILVIE'S
5529 27th Avenue N.E., Seattle 5, Washington

DATE OF FIRST SIGNATURE 12/26/61 DATE OF LAST SIGNATURE 12/29/61

WE, THE UNDERSIGNED, wish to go on record as being in favor of enforcement of Pollution Control in the waters of the State of Washington, pertaining in particular to the paper pulp industry.

Considering the damage done to public health, fishing industries, the resort industry, sports fishing, and other activities, it is necessary that the paper pulp industry be required to comply with the regulations of the Pollution Control Commission.

NAME (print) (DOE, John H.)	SIGNATURE John H. Doe	ADDRESS (Ex.:1111 Green St., Omak, Wash)
E.H. Seidel	E H Seidel	2519 Dexter N. Seattle
William A. Mukai	William A. Mukai	5617 Beacon Ave So.
James Jenkins	JAMES JINKENS	110½ - Empire Way.
MASAJI R. HADA	Masaji R. Hada	508½ S. MAIN St. SEATTLE
Clarence Strong	C STRONG	12417 - 14th So SEATTLE
G E Patterson	G.E. PATTERSON	13047 - 12 N.W Seattle
G. L. Gunstone	G.L. GUNSTONE	BOX 563 BURIEN, WASH.
Carl A. Medeen	Carl A. Medeen	5930 - 44 S.W.
EDWARD C RADWILL	Edward. C Radwill	5206 - 32 SO.
Wm PIFKE	Wm Pifke	2717 - 14th ave S. Seattle
ROY F KINZIE	Roy F Kinzie	5555 - 38th N.E. Seattle
EINAR A ELFSTROM	Einar A Elfstrom	6543 Greenwood Ave. N.
R K GOTTSTEIN	R K Gottstein	243 - 110th Pl S E Bellevue Wash.
M. UCHIMURA	M Uchimura	1430 4th Seattle
Eugene M. Tonda	EUGENE M. TONDA	5511 So. BANGOR ST. SEAttle W.N (18)
Kurt H Hiroshima	K. H HIROSHIMA	11615 - 14TH SO
Halvor Tronnes	Halvor Tronnes	525 Columbia St. - Seattle
Nelson Matsuda	Nelson Matsuda	2007 - Main St. City
Tim McCullough	Tim McCullough	4554 - 34th W
Charles Rucker	CHARLES Rucker	12440 132 S.E. Renton

APPENDIX a17
BILL'S RECORDING SERVICE

RETURN TO OGILVIE'S
5529 27th Avenue N.E., Seattle 5, Washington

DATE OF FIRST SIGNATURE January 1, 1962 DATE OF LAST SIGNATURE 1/4/62

WE, THE UNDERSIGNED, wish to go on record as being in favor of enforcement of Pollution Control in the waters of the State of Washington, pertaining in particular to the paper pulp industry.

Considering the damage done to public health, fishing industries, the resort industry, sports fishing, and other activities, it is necessary that the paper pulp industry be required to comply with the regulations of the Pollution Control Commission.

NAME (print) (DOE, John H.)	SIGNATURE John H. Doe	ADDRESS (Ex.:1111 Green St., Omak, Wash)
Patrick D. Goldsworthy	Patrick D. Goldsworthy	3215 NE 103rd Seattle 55, Wash.
Jane F. Goldsworthy	Jane F. Goldsworthy	3215 NE 103rd Seattle 55 Wash.
Vija Rauda	Vija Rauda	1741 NE 105 Seattle 55, Wash,
Ruth Miller	Ruth Miller	6203 34th Av. N.E Seattle 15 Wash
Marion Donally	MARION DONALLY	3310 EDEN PL. SEATTLE 5, WN.
SAMUEL R. HELLER	Samuel R. Heller	3733 Burke Ave. N. Seattle 3, Wn.
Coombs, Guerdon J.	Guerdon J. Coombs	3986 Union Bay Circle
Shepard, Claud..	Claudine Shepard	5116 Ravenna Pl. N.E.
Wernham, Evelyn I.	Evelyn I. Wernham	1857 23rd E, Seattle 2, Wash
KANE, MAURITA E.	Maurita E. Kane	1425 E. Prospect, Seattle 2
MATTOCKS, MARILYN	Marilyn Mattocks	4511 Ravenna Ave. N. E., Seattle 5
DWYER, PHYLLIS	Phyllis Dwyer	2205 E. Roanoke, Seattle 2
LLOYD D. WILLIAMS	Lloyd D. Williams	Rt. 4, Box 10-A, Burton, Wash.
Harvey, Donald G.	Donald G. Harvey	4210-34 N.E. Seattle, Wash.
Harvey, Bryanetta	Bryanetta Harvey	4210-34th N.E. Seattle 5, Wash.
HUBBARD, NANCY A.	Nancy A. Hubbard	5619½-16th N.E Seattle 5
Hecht, Marilyn	Marilyn Hecht	3775-15th N.E. Seattle 5
Labbe, Robert F.	Robert F. Labbe	3205 NE. 187th Seattle 55
Sewell, Margaret L.	Margaret L. Sewell	2326½ Yale East, Seattle 2
MAKELA ELDA JEAN	Elda Jean Makela	4915 Lake Washington Blvd. So.
Wei Liang Yu	Wei Liang Yu	5631 15 ave NE Seattle 5

APPENDIX A18
BILL'S RECORDING SERVICE

RETURN TO OGILVIE'S
5529 27th Avenue N.E., Seattle 5, Washington

DATE OF FIRST SIGNATURE Jun 2 1962 DATE OF LAST SIGNATURE ____________

WE, THE UNDERSIGNED, wish to go on record as being in favor of enforcement of Pollution Control in the waters of the State of Washington, pertaining in particular to the paper pulp industry.

Considering the damage done to public health, fishing industries, the resort industry, sports fishing, and other activities, it is necessary that the paper pulp industry be required to comply with the regulations of the Pollution Control Commission.

NAME (print) (DOE, John H.)	SIGNATURE John H. Doe	ADDRESS (Ex.:1111 Green St., Omak, Wash)
Herb Thayer	Herb Thayer	Rt 7 Box 66 Olympia Wn
Clara Marie Strobl	Clara Marie Strobl	Rt. 8, Box 276 - Olympia, Wash
Agnes DANELL	Agnes Danell	209 N. Quince Olympia
Martha Thayer	Martha Thayer	Rt 7 - Box 66 Olympia
HATTIE PROHASKA	Hattie Prohaska	1309 W 7th Olympia Wash
Allen O Osborn	Allen O Osborn	1632 North Langridge Olympia Wash
Bob O. Bower	Bob O Bower	Rt 1 Box 123 Olympia
H.R. Ellison	H.R. Ellison	Rt. 1 Box 177 Olympia
O.D Earhart	O D Earhart	Edmonds, Wash.
K. McKenny		17706 - 17 NW Seattle Wash

APPENDIX a19
BILL'S RECORDING SERVICE

RETURN TO OGILVIE'S
5529 27th Avenue N.E., Seattle 5, Washington

DATE OF FIRST SIGNATURE Jan 3-1962 DATE OF LAST SIGNATURE Jan 7-1962

WE, THE UNDERSIGNED, wish to go on record as being in favor of enforcement of Pollution Control in the waters of the State of Washington, pertaining in particular to the paper pulp industry.

Considering the damage done to public health, fishing industries, the resort industry, sports fishing, and other activities, it is necessary that the paper pulp industry be required to comply with the regulations of the Pollution Control Commission.

NAME (print) (DOE, John H.)	SIGNATURE John H. Doe	ADDRESS (Ex.:1111 Green St., Omak, Wash)
Mrs. F. H. Cook	Mrs. F. H. Cook	1018-E Thomas-Seattle
Cook, E. B	Mrs E. B. Cook	1018 E Thomas Seattle
GLENN COOK	Glenn Cook	1018-E THOMAS-SEATTLE-WASH
R. Campbell.	R. Campbell	2516 3rd W.
JANIS A. CRAPSEY	Janis A Crapsey	941½ Hiawatha Pl S.
GEO. W. CRAPSEY	George W Crapsey	"
ALEX GOMAWITZ ~~Alf Gomawitz~~	Alf Gomawitz	4031-48th Ave So
Pyke, Robert E	Robert E. Pyke	1118-10th East -2-
B. H. Seaman	B. H. Seaman	1220-10th East-2-
Roy Darling	Roy Darling	1720-10th East-2-
LEON GRAVELLE	L. G. Gravelle	1323 E. Pine St
A. Dorothy Lalo	A. Dorothy Lalo ~~1508 13 Ave~~	1508 13th Ave
Thos McPhillips	Thos McPhillips	1212-24-East
H. B. Johnson	H. B. Johnson	1103-E. Madison St.
R M Covert	R M Covert	1213 Ea Union
Margaret Heckenberg	Margaret Heckenberg	903 N. 71st. Seattle
HELEN VIVOLO	Helen Vivolo	1634 So-Lane St
F. H. Cook	F. H. Cook	1018 E. Thomas
Laurence Kuchin Jr Laurence Kuchin Jr	Laurence Kuchin Jr	308-1st ave. ~~So.~~ Seattle
WADE. H COOK	Wade H Cook	120-1st ave South

APPENDIX a20
BILL'S RECORDING SERVICE

RETURN TO OGILVIE'S
5529 27th Avenue N.E., Seattle 5, Washington

DATE OF FIRST SIGNATURE Dec 20 - 1961 DATE OF LAST SIGNATURE Dec. 28. 1961

WE, THE UNDERSIGNED, wish to go on record as being in favor of enforcement of Pollution Control in the waters of the State of Washington, pertaining in particular to the paper pulp industry.

Considering the damage done to public health, fishing industries, the resort industry, sports fishing, and other activities, it is necessary that the paper pulp industry be required to comply with the regulations of the Pollution Control Commission.

NAME (print) (DOE, John H.)	SIGNATURE John H. Doe	ADDRESS (Ex.:1111 Green St., Omak, Wash)
MILFOR L SWIFT	Milford L Swift	312 1st ave So.
TelquisT Gretta	Gretta Telquist	321 SUMMIT E. Seattle
REIMANN, HARVEY H.	Harvey H. Reimann	509 East Republican Seattle
J. M Thyne	J. M. THYNE	708 UNIV ST SEATTLE
Dick Ewing	Dick EWING	106 - 10 Ave E Seattle
J M Baxter	J. M. Baxter	1017 - E Harrison
M. E STARK	Myrtle E. Stark	219 1st Av. So.
A.V. CROCK	Albert V Crock	212 1st Ave. So.
A w MAthony	A W Mathiny	221-12 South
Lee Moore.	Lee Moore	1220 10 East.
Roy A. Miller	Roy A. Miller	1834 - 67th West Lynnwood, Wash.
Vito Carnovale	Vito Carnovale	2402 - Eddy St.
Byron Allen	BYRON ALLEN	4319 S. SPENCER ST.
JAMES SEARSORIE	James Scarsorie	114 W 75 St
Neal King	77 wash	Seattle
Francis J. O'Brien	FRANCIS J. O'BRIEN	5949 - 36 Ave. So. Seattle 8, Wash.
Melvin W Berg	Melvin W Berg	8830 1st Ave N.E. Seattle 11, Wn.
ASA K. BYER	Asa K Byer	1717 12th ave Seattle 22, Wash.
Carmen M Cowan ~~Carmen M Cowan~~	Carmen M Cowan	10830 S E 181st. Renton, Wash.
Dennis W. Halverson	Dennis W. Halverson	1626 13th Ave.

RETURN TO OGILVIE'S
5529 27th Avenue N.E., Seattle 5, Washington

DATE OF FIRST SIGNATURE 1-3-62 DATE OF LAST SIGNATURE 1-6-62

WE, THE UNDERSIGNED, wish to go on record as being in favor of enforcement of Pollution Control in the waters of the State of Washington, pertaining in particular to the paper pulp industry.

Considering the damage done to public health, fishing industries, the resort industry, sports fishing, and other activities, it is necessary that the paper pulp industry be required to comply with the regulations of the Pollution Control Commission.

NAME (print) (DOE, John H.)	SIGNATURE John H. Doe	ADDRESS (Ex.:1111 Green St., Omak, Wash)
Chester M. Bowyer	Chester M. Bowyer	1208-75th Ave So. Seattle
CARL M. BLACKstock	Carl M Blackstock	5520 Corniston Rd "
DUANE K. CORNWELL	Duane K. Cornwall	[illegible]
Robert E. Graham	Robert E. Graham	Westport, Wash

RETURN TO OGILVIE'S
5529 27th Avenue N.E., Seattle 5, Washington

DATE OF FIRST SIGNATURE ____________ DATE OF LAST SIGNATURE ____________

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Considering the damage done to public health, fishing industries, the resort industry, sports fishing, and other activities, it is necessary that the paper pulp industry be required to comply with the regulations of the Pollution Control Commission.

NAME (print) (DOE, John H.)	SIGNATURE John H. Doe	ADDRESS (Ex.:1111 Green St., Omak, Wash)
WR Halliday	W.B. HALLIDAY	1117 36th E., seattle
MARJORY MASON	Margery Mason	614 E. Union, Seattle
Ernest M Evans	Ernest M Evans	4404 52nd NE. Seattle
Gertrude KNECHTGES Gertrude Knechtges	Gertrude Knechtges	544 13th Ave W - Kirkland
Elizabeth G. McCain	Elizabeth G. McCain	7202 - 57th NE.
Lucile Anderson	Lucile Anderson	2101 No. 77th
Rogers D. Spotswood	Rogers D. Spotswood	6330 Radford Dr. NE
WALLIN, DAVID G	David G. Wallin	14410 Olympic View Dr. Edmonds
GenevieveG Hendricks	Genevieve G. Hendricks	7743 - 33rd N. W.
ELZA DZINTARS	Elza Dzintars	4317 EVANSTON N. SEATTLE 3
Glenda Emch	Glenda Emch	5227-12th N.E., Seattle 5
Irene Miller	Irene Miller	4702-N.E. 55th Seattle 5
CHAS E. BENDER	Chas. E. Bender	69111 57 Ave NE Seattle
Gordon G. Bergy ~~[illegible]~~	Gordon G. Bergy	7726 57th N.E. Seattle
ALAN W. PETIT	Alan W. Petit	2803 109th AVE. S.E. Bellevue

RETURN TO OGILVIE'S
5529 27th Avenue N.E., Seattle 5, Washington

DATE OF FIRST SIGNATURE 1-4-62 DATE OF LAST SIGNATURE ____________

WE, THE UNDERSIGNED, wish to go on record as being in favor of enforcement of Pollution Control in the waters of the State of Washington, pertaining in particular to the paper pulp industry.

Considering the damage done to public health, fishing industries, the resort industry, sports fishing, and other activities, it is necessary that the paper pulp industry be required to comply with the regulations of the Pollution Control Commission.

NAME (print) (DOE, John H.)	SIGNATURE John H. Doe	ADDRESS (Ex.: 1111 Green St., Omak, Wash)
McCARTNEY, BRUCE	Bruce McCartney	2615 N.E. 70th, Seattle, Wa
Hauge, William M.	William M. Hauge	4018 Bagley Ave. N.
Kelley James D.	James D Kelley	137 E 52 Seattle
Hull Donald H.	Donald Hull	131 13th Ave E Seattle
Thompson R V	R V Thompson	2327- NE. 115th
PRICE - S.F.	S. F. Price	2114 N 45 Seattle
ZIMMER H. J		14330 35th NE Seattle
FORMANEK J.A.	Joseph A Formanek	16092 Greenwood Seattle
Loney G.W.	Geo W. Loney	13045-4th N.W.
Maurice D. Cox	Maurice Cox	2315 Minor E. Seattle
ARTHUR J BULMAN	Arthur J Bulman	1631 No 52nd St Seattle
E.P. THOMPSON	E.P. Thompson	6207 Seaview N.W.
Bessie H Thompson		2109 N.W 58
G.H. LINDHOLM	G.H. Lindholm	825-W-Nickerson
W.H STAPLES	W.H Staples	105-N.W. 50th St
Robert JACOBSEN	Robert Jacobsen	6717-36 N.W.
L R Leamon	LRLeamon	1722 No 2 Mt Vernon
Roy G Sievert	Roy G. SIEVERT	9002- Corliss Ave N.
Walter F. Sievert	WalterFSievert	10707-28 N.E.

RETURN TO OGILVIE'S
5529 27th Avenue N.E., Seattle 5, Washington

DATE OF FIRST SIGNATURE January 8th 1962 DATE OF LAST SIGNATURE ~~January~~ 15th 1962

WE, THE UNDERSIGNED, wish to go on record as being in favor of enforcement of Pollution Control in the waters of the State of Washington, pertaining in particular to the paper pulp industry.

Considering the damage done to public health, fishing industries, the resort industry, sports fishing, and other activities, it is necessary that the paper pulp industry be required to comply with the regulations of the Pollution Control Commission.

NAME (print) (DOE, John H.)	SIGNATURE John H. Doe	ADDRESS (Ex.: 1111 Green St., Omak, Wash)
Arthur R Wood	Arthur R Wood	Seattle Wn 9347-56th ave South
WILLIAM SCHRADER	William Schrader	17860 24 NE Seattle 7 wash-
MARK A. NELSON	Mark A. Nelson	6247-57 NW Seattle, Wash
SWAN GUSTAFSON	Swan Gustafson	22258 1 st north Seattle
H E Thomas	H E Thomas	1850 - NE 175th
W E Carlson	W E Carlson	1015 Alder ST - Edmonds Wn
FENNER PAUL E	Paul E Fenner	2846 N.W. 61 Seattle wash
ANDERSON LAWRENCE	Lawrence Anderson	1408 NW 63 - Seattle.
ZIFF. HOMER	Homer Ziff	4320 - 36 ave West Seattle 99
LESLIE P. TIEDEMAN	Leslie P. Tiedeman	19725 - 84th W Edmonds, Wn
Harris James E	James E Harris	2152 N 89th Seattle 3 Wash.
JAMES P. CLARK	James P. Clark	8549 - 13th N.W. Seattle 7 Wash.
Gertrude Wood	Gertrude Wood	9347 - 56th Ave South Seattle 18 Wn
Ralph W. Goepfert	RALPH W. GOEPFERT	702 No 66th.
RoBerT DicKey	R Dickey	6408 32nd NW
PERRY O LOVE	Perry O Love	14326 - 26th NE Seattle Wn
John E Gallup	John E Gallup	7339 - 13 NW Seattle Wn
James J. Carlson	James J Carlson	7342 13th ave NW Seattle

RETURN TO OGILVIE'S
5529 27th Avenue N.E., Seattle 5, Washington

DATE OF FIRST SIGNATURE Jan 15-1962 DATE OF LAST SIGNATURE ______________

WE, THE UNDERSIGNED, wish to go on record as being in favor of enforcement of Pollution Control in the waters of the State of Washington, pertaining in particular to the paper pulp industry.

Considering the damage done to public health, fishing industries, the resort industry, sports fishing, and other activities, it is necessary that the paper pulp industry be required to comply with the regulations of the Pollution Control Commission.

NAME (print) (DOE, John H.)	SIGNATURE John H. Doe	ADDRESS (Ex.: 1111 Green St., Omak, Wash)
PAXSON Jack J.	Jack J Paxson	938-Pine St. Edmonds Wn
PETERSEN GERALD	Gerald Petersen	20615-26th Ave So. Seattle Wn
Sherman SCOTT S	S.S. Sherman	6935 Seaview Terrace S.W.

RETURN TO OGILVIE'S ELECTRONIC SERVICE
5529 27th Avenue N.E., Seattle 5, Washington

DATE OF FIRST SIGNATURE 27-DEC-1961 DATE OF LAST SIGNATURE ____________

WE, THE UNDERSIGNED, wish to go on record as being in favor of enforcement of Pollution Control in the waters of the State of Washington, pertaining in particular to the paper pulp industry.

Considering the damage done to public health, fishing industries, the resort industry, sports fishing, and other activities, it is necessary that the paper pulp industry be required to comply with the regulations of the Pollution Control Commission.

NAME (print) (DOE, John H.)	SIGNATURE John H. Doe	ADDRESS (Ex.:1111 Green St., Omak, Wash)
KRANZ, EDW. J.	Edw J Kranz	2064 East Bay Dr, Olympia
HAYFORD, RALPH M.	Ralph M Hayford	1818 East Bay Drive - Olympia Wn.
WATSON, Archie H.	Archie H. Watson	Route 4 Box 242, Olympia, Wn.
TROWBRIDGE, LUCY D.	Lucy D Trowbridge	Rt. 8 Box 481 Olympia Wash.
SOUTHARD, LILLIAN	Lillian Southard	Rt 6 Box 502 Olympia Wash
Eddy, CAROL	Carol Eddy	131 Ruby St. - Tumwater, Wash
CAIQUEP, FREDERICK C.	Frederick C. Caiquep	4530 Redwood Lane, Olympia
Selma Lee Philpott	Selma Lee Philpott	Rt. 4 Bx 297 Olympia, Wash.
WM. R. Weatherbie	Wm R Weatherbie	1304 S. Central St. Olympia, Wn
SEYMOUR, NORA B.	x Nora B. Seymour	Rt. 8 Box 188, Olympia Wash.
CAMPBEll CUllEN	Cullen Campbell	Rt 6 Box 75A Olympia Wn
Lloyd Burfiend	Lloyd W Burfiend	607 S. 2nd Tumwater
M. L. Zenor	M. L. Zenor	404 Stillwell Oly. Wash
S. C. ANTHONY	S C Anthony	R 5 Box 476 B Olympia, Wash
W. E. Carpenter	W. E. CARPENTER	114 "U" ST. TUMWATER, Wn
Jonson FORREST M.	Forrest M Jonson	R 5 Box 389A Olympia
Rushforth James	James Rushforth	Rt 3 Box 396A Oly.
Michaelis B. A.	B A Michaelis	RT 7 BOX 769 Olympia

APPENDIX A27
BILL'S RECORDING SERVICE

Office - ROckwell 6-3641
Blanchard, Washington

ROCK POINT OYSTER CO.
GROWERS AND SHIPPERS
PACIFIC ROCK POINT OYSTERS

Blanchard, Washington

Seed Beds in Deboh Bay
Growing Beds in Samish Bay and Oyster Bay
Plants at Blanchard & Olympia, Washington

ROCK POINT OYSTERS
A large, delicious oyster grown on the grandest, and purest oyster feeding beds in the world, in the ice-cold waters of North Puget Sound.
Exclusively Fresh

Absolute Sanitation Inspected and Approved by Public Health Service of State of Washington Certificate No 1.

Rock Points in the Shell

January 19,1962

Mr. Leonard Dworsky, North West Control Officer
Dept of Health Education & Welfare
575 Pittock Building
Portland, Ore.

Dear Mr. Dworsky,

To supplement my remarks at the Pollution conference in Olympia, I would like to submit a graph comparing the production of Pulp by Puget Sound Pulp & Timber Company with our oyster production since 1939. This was as far back as we could accurately go, and prior to any pollution problem, with both industries on an increase.

I have further included a table showing the plantings of oyster seed in Samish Bay and Padilla Bay. These were imported plantings and include all imports. This record is started with 1947 as no imports were made during war years. You will note that no plantings are being made today.

I would like to mention further that the Rock Point Oyster Company has harvested and cleaned up a number of plantings made by growers in this area, and that several have abandoned land or sold to speculators at a very low figure. One of the holdings of land abandoned was that controled by Western Oyster Company. Their land is that land closet to the mill in Samish Bay and also land at Point Francis in Bellingham Bay.

Very truly ,

R. N. Steele
R. N. Steele

PUBLIC HEALTH [illegible]
Water Supply and [illegible]

APPENDIX B
BILL'S RECORDING SERVICE

RECORD OF PACIFIC OYSTER SEED IMPORTED
BY SAMISH BAY AND PADILLA BAY GROWERS 1947 thru 1961

Record of Pacific Coast Oyster Growers Assn.

	Samish Bay	Padilla Bay	total
1947	5,525		
1948	5,556		
1949	5,076		
1950	5,200		
1951	6,275		
1952	7,775	4,000	11,775
1953	5,015	4,750	9,765
1954	4,434	5,000	9,434
1955	6,705	2,250	8,955
1956	6,325		
1957	3,400		
1958	-850		
1959	-500		
1960	--		
1961	--		

Note: Each case of seed represents two bushels of seed and a cost of over 10 dollars per case.

APPENDIX C
BILL'S RECORDING SERVICE

Submitted by R.N. Steele

OYSTER PRODUCTION - ROCK POINT OYSTER CO.
PULP PRODUCTION - PUGET SOUND PULP & TIMBER CO.

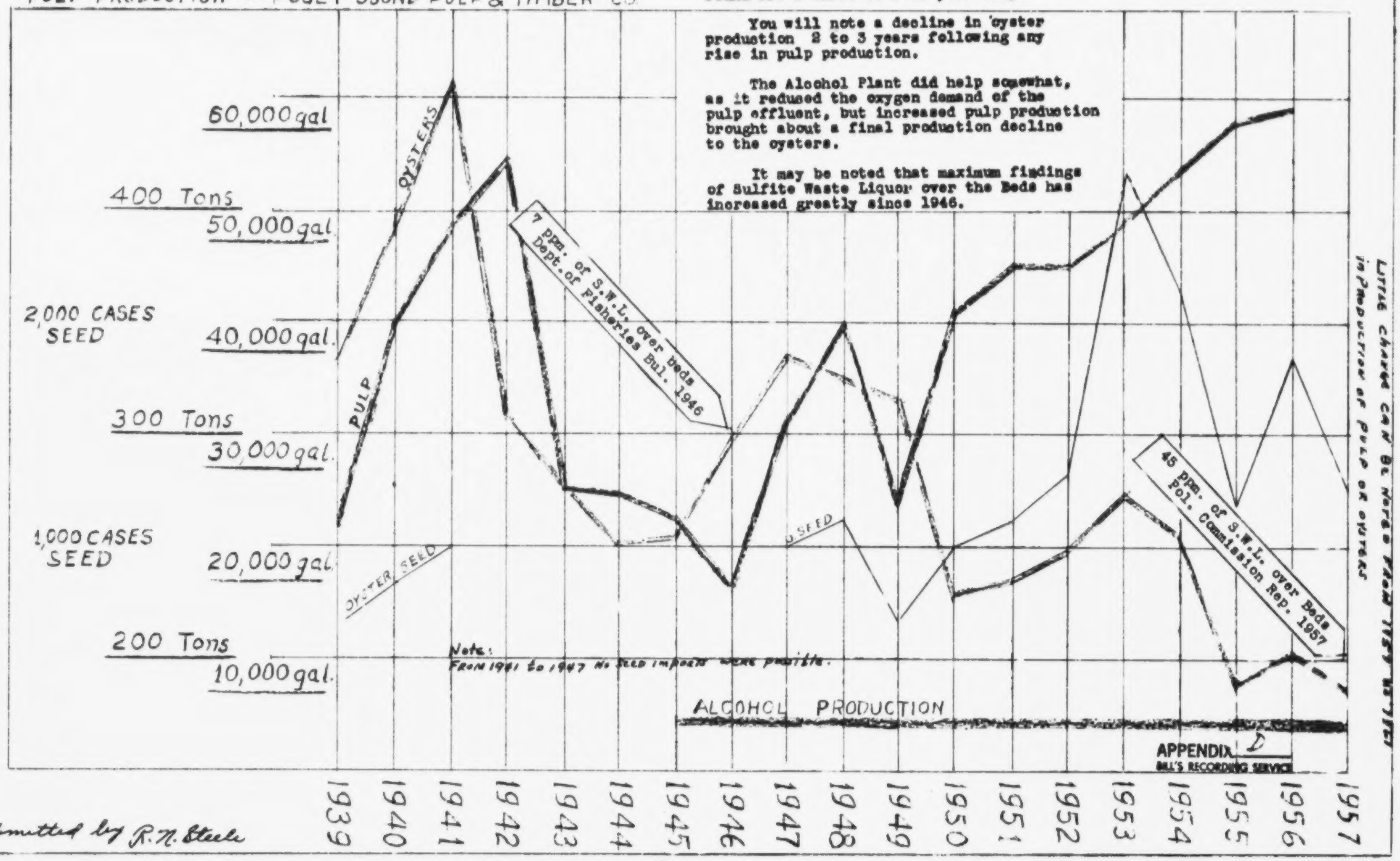
NOTE: 1939 - 246
1940 - 279

Pacific Oysters in Northern Puget Sound are a three to four year crop.

You will note a decline in oyster production 2 to 3 years following any rise in pulp production.

The Alochol Plant did help somewhat, as it redused the oxygen demand of the pulp effluent, but increased pulp production brought about a final production decline to the oysters.

It may be noted that maximum findings of Sulfite Waste Liquor over the Beds has increased greatly since 1946.



Note:
From 1941 to 1947 No seed imports were possible.

LITTLE CHANGE CAN BE NOTED FROM 1957 TO 1961
in PRODUCTION OF PULP OR OYSTERS

APPENDIX D
BILL'S RECORDING SERVICE

Submitted by R. N. Steele

APPENDIX TO STATEMENT ON BEHALF OF NORTHWEST PULP & PAPER ASSOCIATION,

by Mr. Vinton W. Bacon

TABLE 1

DISTRIBUTION OF MARINE LIFE ON THE PILING OF RAYONIER DOCK
Port Angeles - October, 1961

PILING ZONE	DEPTH on PILING	SPECIES COLLECTED FROM THE PILING		
		ATTACHED	MOTILE	
High Tide Zone	2-3' 0'	1) Balanus glandula 2) Balanus cariosus	1) *Neris vexillosa*	
Mean Tide Zone	4-6'	1) Profuse growth of *Balanus cariosus*	1) *Neris vexillosa* 2) *Pisaster ochraceus*	
Low Tide Zone	8-10'	1) Balanus cariosus 2) Dense band *Mytilus edulis*	1) *Neris vexillosa* 2) *Pisaster ochraceus*	
Upper Subtidal Zone	20-25	1) Dense growth of unidentified sponge 2) *Metridium senile* 3) *Pododesmus macroschismus* 4) *Balanus cariosus* 5) *Eudistylia polymorpha* 6) *Small species of Anemone*	1) *Neris vexillosa* 2) Pandalid-like shrimp 3) *Thias lamellosa* 4) *Cancer oregonensis* 5) *Pugettia gracillis* 6) *Strongylocentrotus drobachiensis*	7) *Pisaster ochraceus* 8) *Euphausia pacifica in the sponge* 9) *Clupea harengus pallasi in the sponge*
Lower Subtidal Zone	35-40'	1) *Pododesmus macroschismus* 2) *Balanus nubilis* 3) *Balanus rostratus alaskensis* 4) *Balanus cariosus* 5) *Metridium senile* 6) Small species of anemone 7) Unidentified sponge	1) Neris vexillosa 2) *Thias lamellosa* 3) *Cancer oregonensis* 4) *Pugettia gracillis* 5) Pandalid-like shrimp 6) Hermit crabs 7) *Strongylocentrotus drobachiensis*	8) *Pisaster ochraceus* 9) *Argobuccinum oregonense* 10) *Archidoris monteregensis* 11) Hemigrapsid crab 12) Nudibranchs—2 species 13) Unidentified Chiton 14) Unidentified flatworm

APPENDIX a
BILL'S RECORDING SERVICE

TABLE 2

FREE SWIMMING SPECIES OBSERVED ON OR ADJACENT TO THE RAYONIER PILINGS

PORT ANGELES - OCTOBER 1961

PILING ZONE	DEPTH OF ZONE	FREE SWIMMING SPECIES	
High Tide Zone	2-3'	None	
Mean Tide Zone	0'	None	
Low Tide Zone	4-6'	Buffalo sculpin	Enophrys bison
Upper Subtidal Zone	8-10'	Buffalo sculpin	Enophrys bison
		Black Rockfish	Sebastodes melanops
		Yellow-tailed Rockfish	Sebastodes flavidus
		Pacific herring	Clupea harengus pallasi
		Shrimp	Pandalid-like species
Lower Subtidal Zone	20-25'	Buffalo sculpin	Enophrys bison
		Pacific Herring	Clupea harengus pallasi
		Black Rockfish	Sebastodes melanops
		Yellow-tailed Rock fish	Sebastodes flavidus
		Lingcod	Ophiedon elongatus
		Greenling	Hexagrammid-like species
		Starry flounder	Platichthys stellatus
		Giant marbled sculpin	Scorpaenichthys marmoratus
		Tube-snout	Aulorphynchus flavidus
		Rat-fish	Hydrolagus celliei
		Skate	Unidentified
		Shrimp	Pandalid-like species
		Krill	Euphausia pacifica
	Bottom		

APPENDIX B
BILL'S RECORDING SERVICE

TABLE 3

BEACH SEINING-PORT ANGELES-OCT. 12, 1961

SPECIES TAKEN AND PER CENT COMPOSITION OF THE COLLECTION

No.	Per Cent	Max. size	Species	
799	82.12	to 18"	Pacific herring	--*Clupea harengus pallasi*
103	10.59	to 8"	Shiner perch	--*Cymatogaster aggregata*
19	1.95	to 6½"	Tube-snout	--*Aulorhynchus flavidus*
16	1.64	to 36"	Starry flounder	--*Platichthys stellatus*
12	1.23	to 5" L & to 7" W	Edible crabs	--*Cancer magister*
5	0.52	to 3½"	Tidepool sculpin	--*Oligocottus maculosus*
3	0.31	to 12"	Buffalo sculpin	--*Enophrys bison*
3	0.31	to 12"	Pacific staghorn sculpin	--*Leptocottus armatus*
2	0.21	to 10"	Surf smelt	--*Hypomesus pretiosus*
2	0.21	to 30"	Cutthroat trout	--*Salmo clarki*
2	0.21	to 21"	English sole	--*Parophrys vetulus*
1	0.10	to 5½"	Padded sculpin	--*Artedius fenestralis*
1	0.10	to 7"	Northern anchovy	--*Engraulis mordax*
1	0.10	to 8"	Pacific sand lance	--*Ammodytes hexapterus*
1	0.10	to 15"	Striped sea perch	--*Embiotoca lateralis*
1	0.10	to 12"	Pacific tomcod	--*Microgadus proximus*
1	0.10	to 4"	Threespine stickleback	--*Gasterosteus aculeatus*
1	0.10	to 10"	Crescent grunnel	--*Pholis laeta*
973				

APPENDIX C
BILL'S RECORDING SERVICE

TABLE 4

BEACH SEINING - PORT ANGELES - OCT. 12, 1961

INDIVIDUAL SEINE HAULS

DISTANCE FROM MILL	BOTTOM COMPOSITION	NO. OF FISH TAKEN	PER CENT OF TOTAL	NO. OF SPECIES TAKEN
150 yds.	Mud with pulping fibers	75	7.7%	6 species of fish 1 species of crab
450 yds.	Mud and eel grass	344	35.4%	7 species of fish 1 specie of crab
575 yds.	Gravel and eel grass	104	10.7%	8 species of fish 1 specie of crab
750 yds.	Gravel and eel grass	386	39.7%	10 species of fish
1400 yds.	Gravel and a little eel grass	64	6.6%	5 species of fish.

APPENDIX TO STATEMENT ON BEHALF OF SIMPSON-LEE PAPER COMPANY, by Mr. James P. Hunter

E. Herald January 16, 1962

RAKES 'EM IN—Mel Schwartz, 4113 Colby Ave., closely watches the herring raking ability of Carl Grandy, 4813 Wilmington Ave. Grandy, a half dozen herring on his rake, was picking up some bait for salmon fishing at the Fourteenth Street herring hang-out. (Herald Photo by Ray Watters.)

APPENDIX a
BILL'S RECORDING SERVICE

Catch Runs Into Thousands

Area's Most Productive Fishing Spot Right in City's Front Yard

By WILL NE'SLY
Herald Sports Editor

The most productive fishing spot in this part of the country isn't found on some secluded riffle on a fast-flowing river nor is it found in the depths of the Sound.

More fish are taken from the oil-streaked waters surrounding the Fourteenth Street Moorage Basin here in Everett than in all the rivers combined.

They most certainly are not trophy fish. Who ever heard of a mounted herring? But they are there by the thousands and they've developed quite a following of fishermen.

The herring congregate about the basin early each winter and often remain there until early spring. They school in all sizes.

Some are "spawners," there to deposit their eggs. Others are far too immature for spawning but they move in nonetheless. Maybe they come to learn about the "bees and the flowers" bit.

And when they show so do the fishermen and the fisherwomen and the kids and most of the time they all catch fish. Sometimes by the bucketful. Other times only a scattering few hit the dock.

Many of the herring fishermen are really salmon fishermen in disguise.

They come to the landing and the finger stalls of the moorage with herring rakes, nets, snag lines or with lines equipped with single tiny hooks with the object of getting herring for bait. They take the fish home, slice off the heads, salt the "cut" herring and freeze them for use for blackmouth the next favorable day. Or perhaps they'll keep them until summer when the silvers or the humpies move into the bay.

Others seek the herring for pickling and then for the table.

On a good day — somehow or another the moorage area always draws fishermen on those days— several score will be jigging or snagging into the herring. When the fish are schooled it is not all uncommon for a fisherman to haul in three or four at a time. When they aren't the snaggers work for them, taking singles now and then with many a fruitless cast in between.

As one herring snagger put it as he stripped in his hooks on which three struggling herring were impaled: "It ain't hardly fishing — fact it isn't fishing at all — but it is a lot of fun."

APPENDIX TO STATEMENT ON BEHALF OF PACIFIC COAST OYSTER GROWERS ASSOCIATION, by Mr. R. H. Bailey

PACIFIC COAST OYSTER GROWERS ASSOCIATION
CABLE ADDRESS: PCOGA SEATTLE

TRUSTEES
R. H. BAILEY, SEATTLE, WASH.
JOHN S. CHRISTOPHERSON, LADNER, B.C.
STANLEY C. GILLIES, SOUTH BEND, WASH.
LYNN V. HAYES, BAY CITY, OREGON
RICHARD C. HICKS, OLYMPIA, WASH.
DAVID C. MCMILLIN, SHELTON, WASH.
EARL P. MORGAN, ANACORTES, WASH.
ROBERT Y. NAKAO, SOUTH BEND, WASH.
R. N. STEELE, BLANCHARD, WASH.
NAT A. WALDRIP, SHELTON, WASH.
LEE J. WIEGARDT, OCEAN PARK, WASH.
HAROLD E. WIKSTEN, SEATTLE, WASH.
E. YAMASHITA, GIG HARBOR, WASH.

PRESIDENT
R. H. BAILEY
SEATTLE, WASH.

VICE-PRESIDENT
RICHARD C. HICKS
OLYMPIA, WASH.

SECRETARY-TREASURER
CHARLES R. POLLOCK
66 MARION ST.
SEATTLE 4, WASH.
MAIN 3-0102

January 15, 1962

Washington Pollution Control Commission
Olympia, Washington

Attention: Assistant Secretary James M. Quigley of Health, Education & Welfare
Mr. Murray Stein, Chief Enforcement Officer
Mr. Leonard Dwarsky, Northwest Control Officer

Gentlemen:

Quoting the attached brief, the Gunter-McKee Report found:

1. That sulfite liquor is the only change in North Puget Sound environment

2. That sulfite liquor does reach the oyster beds

3. That sulfite liquor definitely is pollution.

7. That Olympia oyster production declined from 187,336 gallons in 1914 to 2,109 gallons, or almost extinction, in 1957 while the Shelton pulp mill was in operation. Two years after the pulp mill shut-down, Olympia oyster production increased 150% or to 5,300 gallons in 1959.

8b That Pacific oysters can withstand 50 to 100 ppm of sulfite liquor over long periods without mortality.

This statement completely ignored the main reason for the Report, namely: that more than 15,000 acres of former producing oyster lands in Susan Bay just North of Everett, Padilla and Fidalgo Bays near Anacortes and Samish Bay near Bellingham have gone out of production except for 50 acres in the mouth of the Samish River were the pollution is diluted and held out of the area.

Over 500,000 bushels of emaciated and unmarketable oysters were virtually abandoned due to the high cost of long moves to unpolluted areas. Some of these oysters have been transplanted to the 40 acre beds at Similk Beach just inside Deception Pass, where they fatten and can be marketed in 4 to 8 months after being moved. The out of pocket loss to North Puget Sound oyster growers has exceeded $500,000.00 while the loss to the economy of the State and its payrolls has been several times that amount.

Very truly yours,

PACIFIC COAST OYSTER GROWERS ASSOCIATION

By R H Bailey
R. H. Bailey, President

APPENDIX C1
BILL'S RECORDING SERVICE

Washington Pollution Control Commission
Olympia, Washington

Gentlemen: Attention Art Garton, Director

The report by Drs. Gordon Gunter and Jack McKee has dissipated much of the fog which has surrounded the pollution controversy.

1. SULFITE LIQUOR IS THE ONLY CHANGE IN ENVIRONMENT:

Section four has eliminated temperature, salinity and predators as having more than a minor effect on oyster culture in Washington. Their conclusions are set forth in the last paragraph of each section. They thereby eliminate all other environmental and natural factors as having any appreciable effect on oyster production. These findings completely contradict the statement of February 4, 1958 by the Northwest Pulp and Paper Association in which they blamed everything but sulfite liquor for the troubles of the oyster industry. The Gunter-McKee report has now eliminated every other factor, except sulfite liquor, as oyster beds are always far removed from any effects from other pollutants such as domestic sewage from cities.

2. SULFITE LIQUOR REACHES OYSTER AREAS:

> Quoting the fourth paragraph on p 25: "Various bay models there were inspected by one of us. The general finding is that a dye fed into any part of a complicated bay model system soon spreads to all other parts of the model."

This confirms the findings of the Commission's Technical Bulletins, namely that sulfite liquor reaches the oyster growing areas.

3. SULFITE LIQUOR DEFINITELY IS POLLUTION:

Section five, pages 45-58 finds that sulfite liquor is definitely a toxic pollutant and gives many examples of the amount of liquor required to increase the mortality of oysters and oyster larvae. Par. (b), p 51, quoting research by the Washington Department of Fisheries:

> "Indicated that the mean of 10 tests showed 94 per cent survival in the controls, 88 per cent at 3 to 5 ppm, but only 55 per cent at 8 to 10 ppm concentrations of ammonium-base SWL. At 10 to 12 ppm, only 15 per cent survived, and above 13 ppm there was almost complete mortality." (of Pacific oyster larvae)

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This violent effect on oyster larvae completely refutes the pulp mill claims that sulfite liquor is not a pollutant.

4. SULFITE LIQUOR STIMULATES SLIME ADVERSE TO THE OYSTER'S GROWTH:

Section 6, par. 6.03, p 61:

> "Stimulation of Marine Life Adverse to Oyster Culture:
> It has been well established that the sugars in sulfite waste liquors stimulate the growth of Sphaerotilus natans in fresh water."
>
> "In marine or estuarine waters, the stimulatory effect of SWL has not been well documented, although oystermen claim that blooms of the brown diatom, Melosira, have been caused by SWL. Kincaid and Benson (1931) noted that during the bioassays described in subsection 5.02a, slight sliming occurred in the troughs receiving 100 ppm of cold-blown calcium-based liquor, in contrast with no sliming in the control troughs."

Drs. Gunter and McKee were shown moving pictures of the sliming that occurred in southern Puget Sound with only the small concentration of the sulfite resulting from the Shelton pulp mill operation. These slimes have disappeared since the shut down of the pulp mill in the last 33 months.

5. EAST COAST DECLINE HAS NO RELATION TO OUR PROBLEM:

The Gunter-McKee report calls attention to the decline of oyster production in other areas in par. 3.04:

> "It is significant to note, however, that oyster production in many areas has fallen off sharply in recent years."

The report then calls attention to the decline of oyster production in New Jersey and Delaware with the insinuation that such decline is the normal thing. As a matter of fact the title to the article they quote from in the WALL STREET JOURNAL is "Oyster Crop Shrinks As Puzzling Malady Takes a Larger Toll" (p 86). This is a similar situation to the loss of eastern oysters in the State of Washington as referred to in par. 6, p 11:

> "then in 1919 all of the oysters died in a few months' time from an unknown malady. This catastrophe ended the commercial growing of eastern oysters in the State of Washington."

Delaware Bay growers lost 90 per cent of their oysters two years ago but now have a good catch of young oysters almost a year old. The decline in New Jersey and Delaware oyster production has no relation to the problem in this State.

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6. SOME NORTH PUGET SOUND PRODUCTION FIGURES IN ERROR:

Production shown for Padilla Bay of 26,754 gallons in 1957 and 25,061 gallons in 1958 should be 1,100 gallons in 1957 and none in the other years. The production shown except for the 1,100 gallons was from Similk Bay. No Padilla Bay oysters were transplanted to Similk Bay prior to 1959. Most of the production credited to Samish Bay for 1955, 1956 and 1957 was from Similk Beach and not even from oysters transplanted from Samish Bay. Oysters transplanted from Samish Bay to Similk Bay in 1957 took over a year to fatten to marketable condition instead of the three or four months mentioned in the footnote.

7. ANALYSIS PRODUCTION STATISTICS:

Quoting par. 3.05, p 17:

1. "The production of Olympia oysters in Puget Sound has declined from a mean value of about 60,000 gallons per year prior to 1920 to less than 10,000 gallons per year in recent years."

The truth is Olympia oyster production declined from a high of 187,336 gallons in 1914 to 2,109 gallons in 1957, as shown on p 14. In other words, the Olympia oysters had become practically extinct. In 1959 production of 5,300 gallons Olympia oysters was a 150 per cent increase over the 2,109 gallons in 1957. These statistics (1959 production from U. S. Fish & Wild Life) should prove to any practical person the direct relationship between even a small concentration of sulfite liquor and Olympia oyster production.

2. "The production of Pacific oysters in the State of Washington, and especially in southern Puget Sound and Grays Harbor, has expanded in the past two decades.

3. The production of Pacific oysters in southern Puget Sound and in Grays Harbor, where sulfite waste liquors have been present, has increased during the past two decades more impressively than in Willapa Harbor where SWL is absent.

4. A total production of oysters, in pounds of meat per year, has been higher in southern Puget Sound during the last decade than ever before, despite pulp mill operation."

These statements give a wrong inference as to the true situation. Willapa Harbor was fully developed and in large production 20 years ago as shown by the table on page 18. Grays Harbor has the area to produce almost as many

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oysters as Willapa Harbor, but production of gallons of oysters per case of seed-planted is consistently much lower than production in Willapa Harbor. The Grays Harbor 1958 production was only 11 per cent of Willapa Harbor's production.

Growers of oysters in southern Puget Sound had to resort to the Pacific oysters for their economic survival due to the failure of the Olympia oyster industry. They depend on Pacific oyster seed imported from Japan. Pacific oysters tolerate more sulfite liquor and naturally showed an impressive increase as it started at zero. In southern Puget Sound the Pacific oysters produced 136 times as many pounds oyster meat as did Olympia oysters in that area in 1957. Pacific oysters sell for approximately 10 per cent of the Olympia oyster sale price per gallon. The Pacific oysters were able to survive and fatten to a poor but passable marketable condition with the low concentration of sulfite liquor from the Shelton pulp mill. The 1958 condition factor improved 20 per cent after the Shelton pulp mill reduced operations in 1956 and finally shut down in August of 1957 (p 39)

8. THE FINDINGS ARE BASED ON MORTALITY INSTEAD OF QUALITY:

Drs. Gunter and McKee were authorized to study this problem

> "With special emphasis on the effects of such liquors on oyster productivity and quality." (Par. 1.01, p 2)

The last sentence of par. 4.12, p 37

> "Complaints from oystermen are more often concerned with condition or fatness than with growth."

The last sentence of par. 4.14 (g), p 44

> "the general troubles of the oyster industry in the Pacific Northwest seem to be concerned more with the condition factor than the mortality factor, except as it extends over more years than it should because of poor condition."

Although it was our understanding that the report would deal not so much with mortality as with the problem of several hundred thousand bushels of emaciated and unmarketable oysters in northern Puget Sound. This is the only remaining critical area. Contrary to our understanding, the report deals almost entirely

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with the concentrations of sulfite liquor that cause mortality of the oysters.

The toxic action of sulfite waste liquor towards oysters and oyster larvae as set forth in sec 5, p 76, finds

(a) that 8 - 16 ppm are detrimental to Olympia oysters.

(b) that Pacific oysters can withstand 50 - 100 ppm over long periods without mortality.

(c) that 16 ppm or lower are inimical to the survival of Olympia larvae and that 8 - 16 ppm represent the tentative threshold of toxicity for Pacific oyster larvae.

All these findings refer not to the condition of oysters, but to the mortality. In fact, our Department of Fisheries found (p 51, b) that with 13 ppm there was complete mortality of Pacific oyster larvae. Regardless of the memorandum given Drs. Gunter and McKee that they were to consider production and quality of oysters, they now recommend standards based on mortality as shown in their recommendations on p 79:

(a & c) 10 - 20 ppm for Olympia oysters and Pacific oyster larvae; (b) 40 - 80 ppm for Pacific oysters or 80 per cent of the 50 - 100 ppm in which Pacific oysters can live (b p 76) but with no relation whatever to condition or marketability of the oysters. This is in contrast to findings of our own Department of Fisheries' biologists, who without exception found that over 3 - 4 ppm of sulfite liquor would adversely effect the oysters on Puget Sound beds.

9. MONITORING LACKS LEGAL EFFECT:

The pollution law, see 11, p 5, says the Commission shall have the power to prescribe standards consistent with known available and reasonable methods of preventing pollution. Drs. Gunter and McKee analysed the legislation in 2.02, p 6:

1. "It is the public policy to maintain the highest possible water standards consistent with the propagation of aquatic life and the industrial development of the state.
2. It is the public policy, moreover, to require the use of all known, available and reasonable methods to prevent and control pollution.
3. The act is broad in this category for it leaves to the discretion of the WPCC whether to utilize statewide standards or requirements for each case under consideration, to employ effluent standards in addition to or in lieu of standards for the receiving waters, or to ignore standards entirely."

They find that it is public policy to require the use of all known, available and reasonable methods to control pollution. When a large percentage of the

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pulp mills in the State of Washington are using the magnesium-oxide process or are converting to the new sodium process developed by Rayonier, and as a pulp mill in New Hampshire and two pulp mills in Alaska have already installed the magnesium-oxide process, it would seem that this use establishes the known, available and reasonable methods preventing pollution. The present pollution control commission has monitored water in critical areas throughout the state and has published their findings in Technical Bulletins No. 20, 21 and 22. The recommendation that the commission now duplicate this work is without merit. There is no appreciable change in the concentration to sulfite liquor in northern Puget Sound. There has been a slight increase in the evaporation of liquor at Bellingham, which has been more than offset by the increase in production by the mill.

Regardless of the liquor found over oyster beds in Samish and Padilla Bay, The commission, under the law, has no power to ask the mill to do more than evaporate 85 per cent of its sulfite liquor, as that is the only known, available and reasonable method. This would be true even though 100 ppm of sulfite liquor were found over the oyster beds. Any extensive monitoring program would be a complete waste of money and without force or effect.

More monitoring would only be justified in case there was a radical increase or decrease in production or in evaporation of liquor. Samples should be taken in all areas during both north and south winds. The sulfite liquor concentrations in Samish Bay increased five fold with a north wind as compared with a south wind as shown by Technical Bulletin No. 22. The only monitoring which would be justified in that area would be a week spent in taking samples in Padilla Bay following a period of north winds.

North Puget Sound is the only critical area remaining since:

1. Shut down of the Shelton pulp mill.
2. Construction of evaporators at Hoquiam.
3. Large scale liquor storage at Camas with promise of full utilization of wastes within ten years.

Drs. Gunter and McKee have done a heroic job in appraising and codifying the half ton of information on the subject. Two other famous biologists have made short statements applicable to the north Puget Sound area. Dr. P. Korringa in the 1952 Quarterly Review of Biology:

> "The lethal effect of high concentrations of sulfite liquor has been reported before, but the slow action of prolonged exposure to small concentrations of this dangerous pollutant is of no less importance - - Some fractions of the pollutant undergo chemical and bacteriological breakdown when diluted in sea water, but there is no proof that fractions toxic to oysters are readily disintergrated."

and Dr. M. V. Veldeo of Stanford Research Institute in a letter to the Olympia Oyster Growers Association dated April 30, 1956:

> "Is your problem lack of information or lack of effective use of the information you have? Isn't it a problem of having adequate state laws * * and their enforcement. With our present knowledge, both domestic and industrial wastes can be purified without undue expense to community or industry and at the same time protect the natural resources whether found in water or air or ground. It seems to me that you should explore along these lines before considering another investigation which can only be a duplication or extension of what is now available."

Temporary Permits were issued by the Commission 47 months ago with orders to evaporate 85 per cent of their liquors. The Commission has properly extended these permits or allowed them to continue automatically while completing the Technical surveys and now the Gunter-McKee codification of information. The Commission now has detailed and accurate information which requires only action.

We respectfully ask the Commission to make the temporary permits effective forthwith by assessing the few laggard pulp mills the $100.00 penalty per day for non-compliance as provided by law. (This would shut down no pulp mill as it would be less than one per cent of the daily net earnings of the effected pulp companies.)

Attached herewith is a summary of the data in Technical Bulletin No. 22, which was furnished the Commission in January, 1958. The first column shows the present pollution at varying distances from the pulp mills, the second column shows the sulfite liquor concentration that would remain after evaporation of 85 per cent of the liquor by the pulp mills.

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Respectfully submitted

R. H. Bailey R H Bailey

May 1960

SUMMARY OF DATA COMPILED IN TECHNICAL BULLETIN NO. 22

The first column shows the average of all determinations of sulphite liquor at the stations within the described areas.

The second column is 15% of the first column. This will be the SWL pollution under the same conditions of tide and wind after the Bellingham pulp mill has complied with its Temporary Permit issued in June, 1956. Clause 8 of that Permit provides:

> Firm proposal shall be made within one year for the reduction of the sulphite liquor descharge by 85% with quarterly progress reports to the Commission.

The Anacortes pulp mill must also comply with the terms of its Temporary Permit; its SWL must be piped further West to a deep water outfall with storage to permit discharge only on outgoing tides. Clause 8 of that Permit proves:

> Firm proposal shall be made within one year for the utilization, recovery or treatment of SWL and wash waters with quarterly progress reports to the Commission.

INNER BELLINGHAM BAY Distance from Outfall	Present Pollution	After Compliance
Within .3 mile, Stations 5 & 6	2,062 ppm	309 ppm
.3 to .5 mile, Stations 4 & 7	446 "	67 "
.5 to 1 mile, Stations 2, 3 & 8	186 "	28 "
1 to 2 miles, Stations 1, 9, 10, 11, 14, 15, 16	87 "	13 "
2 to 2½ miles, Station 12 & 13	42 "	6.3 "
OUTER BELLINGHAM BAY		
6 to 9 miles, Sta. 1, 1A, 1B, 2, 3, 3A, 3B, 4, 5 & 6	18 "	2.7 "
SAMISH BAY		
13 miles, Stations 7, 8 & 9	13.3 "	2 "
PADILLA AND FIDALGO BAYS		
13 to 21 miles, Sta. P1, to P19, inclusive	4.6 "	.7 "
GUEMES CHANNEL Distance from Anacortes Outfall		
Within .5 mile, Station 20	22.7 "	3.4 "
.5 to 1 mile, Stations 21, 22 & 23	6.7	1 "
1 to 6 miles, Station P1 to P19, inclusive	4.6	.7 "

NOTE: Water samples taken in Samish Bay during North winds were five times as high in SWL as those taken with a South wind.

Water samples were all taken during South winds in Padilla Bay and after a shut-down of the Anacortes pulp mill for an eleven day period.

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PACIFIC COAST OYSTER GROWERS ASSOCIATION

CABLE ADDRESS: PCOGA SEATTLE

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January 15, 1962

Washington Pollution Control Commission
Assistant Secretary James M. Quigley of Health, Education and Welfare
Mr. Murray Stein, Chief Enforcement Officer
Mr. Leonard Dwarsky, Northwest Control Officer

Gentlemen;

Letter from STANFORD RESEARCH INSTITUTE of 1956 advises that our problem is one of enforcement and that further investigation would simply be a duplication of those in the past. The brief was to correct very misleading information furnished to the Legislature of 1959 by the Northwest Pulp and Paper Association which had first presented the paper to the Pollution Commission early in 1958.

We believe that it was an unsuccessful effort to hoodwink both the Washington Pollution Control Commission and the members of Legislature. There has been little change in pollution abatement since Governor Wallgren's Administration. The Weyerhaeuser process at Longview and the evaporator at Shelton were all completed or were under construction before he left office.

There has been little major project gain in pollution control in the past five years; evaporators at the new Cosmopolis mill and at Hoquiam. However, this present Pollution Commission has done a real job of getting out comprehensive engineering and biological studies in all areas of the State; Technical Bulletins 20, 21, 22 and 23. TheCommission has stood firm under great pressure in the present situation and we sincerely hope that the United States Department of Health, Education and Welfare will enter the case through the Department of Public Health.

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Sincerely

PACIFIC COAST OYSTER GROWERS ASSOCIATION

President

STANFORD RESEARCH INSTITUTE

Menlo Park, California

BIOLOGY DEPARTMENT

April 30, 1956

Mr. Herbert G. Nelson, President
Olympia Oyster Growers Association
Route 1, Box 280
Shelton, Washington

C
O
P
Y

Dear Mr. Nelson:

This will acknowledge your letter of April 17. To conduct an investigation as you mention in the last paragraph of your letter by an outside research organization, such as Stanford Research Institute, would be a very expensive undertaking for your Association. This is because rather extensive laboratory facilities, field equipment for water sampling, oyster collections and other studies of the Sound waters in the areas of the oyster beds would be needed. It would also require the time of an adequate technical staff, and the necessary non-technical help for an entire calendar year in order to cover all factors.

Since receiving your letter, I have made a partial review of technical literature bearing on paper mill pollution and oysters. In addition, I have had a discussion with Dr. Harold G. Orcutt of the Marine Fisheries Branch, California State Department of Fish and Game. Dr. Orcutt is concerned with shellfish problems and is fairly well acquainted with the problems existing in the Puget Sound area. He mentioned that the State of Washington now maintains a very fine shellfish laboratory with a competent staff at Quilicene on Hoods Canal which is under the supervision of Dr. Cedric Lindsay. I assume that you and your associates are well acquainted with Dr. Lindsay and his staff.

I have found in the reference libraries at Stanford University several reports which have a direct bearing on your problem. Probably further search here and elsewhere would yield additional information. Three of these reports seem to give direct answers to your problem:

1. Bulletin No. 6 from the Bulletin of the Bureau of Fisheries, Washington, D.C., (issued March 11, 1931)
   This contains 3 reports:
   a) Hopkins, A. E. Effects of Pulp Mill Pollution on Oysters (ostrea lurida)
   b) Caltsoff, Paul S. The Effects of Sulphite Waste Liquor on the Rate of Feeding of Ostrea Lurida and Ostrea Gigas.
   e) McMillan, H.C. Investigations of Oyster Mortality in Oakland Bay, Washington
2. Galtsoff, Paul S., Walter A. Chipman, Jr., Arthur D. Hasler and James B. Engle.
   "Preliminary Report on the Cause of the Decline of the Oyster Industry of the York River, Va., and the Effects of Pulp-Mill Pollution on Oysters."
   Investigational Report No. 37, Bureau of Fisheries, Washington, D.C., 1938.
3. McKernan, Donald L., Vance Tartar and Roger Tollefson.
   An Investigation of the Decline of the Native Oyster Industry

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of the State of Washington, with Special reference to the Effects of Sulfite Pulp-Mill Wastes on the Olympia Oyster (Ostrea Lurida). Bulletin No. 49-A (April 1949), State of Washington, Department of Fisheries.

Each of these three bulletins present the type of information which you indicate is needed. This is particularly true of the three papers contained in the Fisheries Bulletin No. 6. The work represents on-the-spot studies at the oyster bed area of Puget Sound and carried out by competent investigation. Confirmation is provided by another investigation (2) covering the York River, Virginia oyster-paper pulp mill problem. There is reconfirmation in a later investigation made by staff members from the Washington Department of Fisheries relative to the Olympia oyster (3).

I believe you can find some further confirmation in a study made of the Lake Champlain water shed, including the Ausable River in New York State. (19th Annual Report, State of New York Conservation Department, 1929 (1930), p 186 and p 220.

Is your problem lack of information or lack of effective use of the information you have? Isn't it a problem of having adequate state laws, covering the disposal of domestic and industrial wastes into state waters-both fresh and salt, and their enforcement? With our present knowledge both domestic and industrial wastes can be purified without undue expense to community or industry, and at the same time protect the natural resources whether found in water or air or ground.

It seems to me that you should explore along these lines before considering another investigation which can only be a duplication or extension of what is now available to you. I would imagine, also, that the staff at the Quilicene laboratory could determine, without much effort or expense, if the protective measures installed at the Shelton plant are both adequate and properly operated. A failure of a few thousand gallons at intervals or a continuous trickle may be enough to produce the damage you are observing, since the replacement of the water in Oakland Bay by tide flow is so very inadequate. Apparently this was the same in the York River Virginia pollution.

Would it be advisable and helpful for your organization to offer its services to the Quilicene laboratory to the extent of collecting water samples at designated points in Oakland Bay? A critical inspection of the waste disposal system at the paper mill by a competent industrial engineer would also be advisable.

Very truly yours,

M. V. Veldee, M.D.
Chairman
Department of Biology

MVV/mm

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ANALYSIS BY PACIFIC COAST OYSTER GROWERS' ASSOCIATION OF STATEMENT BY THE NORTHWEST PULP AND PAPER ASSOCIATION TO THE POLLUTION CONTROL COMMISSION ON FEBRUARY 4, 1958, REGARDING WATER QUALITY STANDARDS RECOMMENDED BY THE DIRECTOR OF FISHERIES.

This statement concerns the Director of Fisheries' proposal that sulfite liquor concentrations be limited to three parts per million beyond one half mile from point of discharge, and that dissolved oxygen concentration shall not fall below five parts per million one quarter mile from point of discharge; that wastes which tend to collect and remain in bays, inlets, lakes, rivers or streams shall either be purified or barged or piped or otherwise transferred to areas authorized by the Commission.

Contrary to the Pulp Association's statement, these limits must not be exceeded in areas where our fish are either propagated or produced. The attached letter from Stanford Research Institute lists many reports of independent qualified biologists and scientists on this matter. The Director of Fisheries' proposed criteria was accompanied and supported by several statements by unbiased biologists who have spent ten to thirty years in the study of this question.

A recent practical test of sulphite liquor damage was given by the closure of the Shelton pulp mill fifteen months ago. This mill evaporated 80% of its liquor when operating. Conditions prior to the shutdown were documented by hourly samplings, which have been continued since the shutdown, thus giving a complete picture of conditions before and after the removal of sulphite waste liquor from the receiving waters.

Prior to the shutdown of the Shelton pulp mill the Olympia oyster had become virtually extinct. The area was abandoned for many years by the spawning herring. Small shrimp and other marine life had disappeared.

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Since the mill shutdown, normal conditions have again returned to this area and all types of marine life are flourishing once again. Herring, shrimp and other marine life are again in evidence in abundant quantities. The very hardy Pacific oyster is growing beyond expectations.

It must be pointed out that no other change in the environment of the waters in this area took place except the removal of the small percentage of SWL (under 20%) which escaped with the wash water and was not evaporated.

Without question, oysters cannot be produced commercially in areas which have the toxic effect of 3 ppm of sulfite liquor. Salmon, on the other hand, can tolerate the toxic effect of higher concentrations of sulfite liquor, but they cannot tolerate the oxygen deficiency caused by the oxygen demand of sulfite liquor in the vicinity of a pulp mill.

Pulp mills using the sulfate process have eliminated most of their pollution by evaporation and recovery of chemicals. A similar process, known as the magnesium-oxide process, was developed for the sulfite mills thirteen years ago, but has been adopted by only two mills in this state -- the Weyerhaeuser plants in Longview and Cosmopolis. The process is used in all Alaska pulp mills and some pulp mills in New England.

The pollution law says; "The Commission shall *****adopt*****regulations and standards consistent with known, available, and reasonable methods of preventing pollution."

The magnesium oxide process is perfected, it is available, and even financially profitable because of its recovery of heat and chemicals which otherwise would pollute the waters. Pulp mills spend millions of dollars in rates for water which in turn retires large bond issues by municipalities for delivering 100 million gallons at Everett, 40 million gallons at

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Bellingham, and in like proportion to other pulp mills of this state.

Sulfite pulp mills require the purest of water, but the majority dump their effluent into the inner bays which lack adequate circulation for dilution and dispersal of these wastes. How can the pulp mill industry contend that they are not polluting the water? Their own 13-year research by scientists of the University of Washington, at a cost of $500,000, has recommended, "that disposal by ponding or by piping the liquor to a large scale dilution site may be desirable pending further development of treating methods." (Copy of report enclosed).

This certainly is an admission by these unbiased men that after thirteen years' study they have come to the conclusion that something must be done to correct the situation now.

To consider the arguments made in this pulp mill statement on oysters, page 4: The appropriation of $125,000 on January 4, 1957, to conduct a research program as to the effect of sulfite liquor on oysters, was made prior to the very emphatic answer to this problem by the shutdown of the Shelton pulp mill.

The damage to the oyster industry by sulfite liquor is not so much in the mortality of the oysters, as it is in the effect of low sulphite liquor concentrations which causes the oysters to become unmarketable. The large scale Shelton test proves that the oysters are stunted in growth and watery and emaciated when subjected to very small concentrations of sulfite liquor.

No. 2, page 5, quotes P. Korringa of Holland, on drills. Contrary to this statement, oyster culture is prospering in areas heavily infested with drills. Drills are found throughout Hood Canal, and still oysters propagate naturally and prosper throughout the area. The south Sound industry will produce 300,000 gallons of oysters this season, and still drills are found throughout that area. The beds mentioned as being abandoned in Samish Bay are owned by the Rock Point Oyster Company, and can produce crops of oysters without too much damage.

No. 3, page 5. There are no drills on the oyster beds in Humboldt Bay in California, and the industry was never ruined by oyster drills. The rise in production at Humboldt Bay has been due to large plantings made in California by Washington oyster growers.

Nos. 4 and 5, page 6. This statement refers to a fungus found in Louisiana. This has no connection with our situation, as we have no fungus or mortality from fungus in Washington oyster beds.

No. 7, page 7. The statement on antiquated methods of shellfish management in Chesapeake Bay by Senator Magnuson may have some merit, as they are still committed largely to the free fishing of oysters in public waters. Washington oysters are grown on land in private ownership, and oysters are cultivated and harvested by the most modern advanced methods used anywhere in the world. This has become necessary by reason of the very high wage scale in the Pacific Northwest.

The results after the shutdown of the Shelton pulp mill are the complete answer to these insinuations that low concentrations of liquor do not affect oysters.

No. 9, page 8. We are not familiar with Biological Report 49-A, but speaking to Subhead 4, "The waste to which oysters are exposed on beds is not the same as that used with the test oysters." (In the laboratory) Here again, the very practical large scale test in the Shelton area under the natural conditions, fully documented by hourly sampling and tests of the water,both before and after the shutdown of the pulp mill, is the full answer to these rather technical arguments.

No. 10, page 9. We are not particularly interested in the fact that 50 ppm of sulfite liquor did not kill oysters, for the reason that we still have 300,000 bushels of oysters in Padilla Bay which remain in an unmarketable condition, and which have not died in the concentrations of liquor in the area. As we said before, the problem is not the mortality of the oyster; although in its emaciated condition in the presence of SWL its mortality rate naturally would increase. Our main complaint is that the remaining oysters are unmarketable and therefore the industry in such an area must die, with very great damage to the economy of the state of Washington. This is also true of the clams and the crabs.

Statement No. 11 on page 9, is not factual andindicates the wrong conclusions. This state had a very large thriving native oyster industry going back to the days of 1849, when oysters were shipped in great quantities to California. This industry was greatly depleted by over-fishing. In comparatively recent years a few individuals started the propagation and cultivation of the native oysters in the Olympia-Shelton area, under the trade name, "Olympia".

The record of depletion of Olympia oysters is fully recorded on page 16 of the enclosed 1957 Statistical Report of the Washington State Department of Fisheries. The production in 1935 was 319,900 lbs, or 36,560 gallons. The gradual depletion of these beds to practically extinction by 1957 is shown on the table on the next page. By 1957 the production was down to 17,647 lbs., or 2,008 gallons.

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Year	Olympia Oysters (lbs.)
1935	319,900
1936	299,500
1937	262,500
1938	261,300
1939	236,300
1940	222,700
1941	258,200
1942	239,700
1943	167,600
1944	159,300
1945	151,100
1946	169,300
1947	146,000
1948	154,500
1949	203,000
1950	138,800
1951	107,600
1952	120,200
1953	117,600
1954	70,899
1955	56,215
1956	26,067
1957	17,647

Production of Olympia oysters is now on the upgrade due to the heavy catch of seed during the past two years. The resulting oysters are showing good growth and slight mortality. The industry will be back into substantial production as these oysters mature two or three years hence. There has been no change in the conditions in the Olympia-Shelton area except the removal of the pulp liquor by the shutdown of the Shelton pulp mill.

The decrease in the Olympia oyster industry from 1,540,000 lbs. in 1902 to 349,780 lbs. in 1918 is simply a story of a free-fishing industry where the great reefs of Willapa Harbor and Samish Bay were exploited by everyone without the conservation which comes with private ownership. They had entirely different conditions from those that caused the decrease in Olympia oysters as these "domesticated" oysters on private property were given full protection of the owners.

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The authors of the pulp mills' statement were apparently trying to prove the statement "You can prove anything by statistics". They have tied in the production of the little Olympia cocktail oyster with the production of the very large Pacific oyster used for both fresh and canned products. It would be just as sensible to connect such statistics on smelt with statistics on the king salmon. The Olympia oysters have always been a comparatively high-priced product; in general, selling for eight or ten times the price of Pacific oysters for a gallon.

The Pacific oyster industry was based entirely on the development of methods for getting a live seed oyster across the Pacific on a three weeks' trip. The tremendous expansion in this industry is due largely to the fact that it is a superior canning oyster as compared to the Eastern or Gulf oyster. The proof of that statement is the fact that some 2-1/2 million dollars worth of canned oyster soup, a combination of milk and oysters, is sold clear across the United States, with a very large volume going into the Eastern oyster territory.

The fluctuations in the production in Willapa Harbor which they refer to were created by two factors:

(1) The high prices stimulated the harvesting of all available oysters shortly after the start of World War II.

(2) When the War started, shipments of seed oysters from Japan were cut off. Then the War Production Board came out with an M-81 order which provided that the can which had a drained weight of oyster meats of half the contents of the can henceforth must contain a drained weight of 2/3 of the contents of the can. The oyster grower was faced with a problem of a diminishing supply of oysters which he could not replace by planting

more seed. He therefore reduced his production in order to last out the war period.

After the War the production went up to a peak in 1946, as a result of high prices and the end of the War, which promised a replacement of the grower's supply. Oysters are not a yearly crop. They can be harvested at 2 - 3 - 5 or 6 years of age. Good prices increase production of oysters which otherwise could stay on the beds and add growth.

Figure 3 gives the production in the Puget Sound District. Unfortunately, North Puget Sound and South Puget Sound statistics are all thrown together.

Prior to the War the Shelton-Olympia area had been devoted almost entirely to the production of Olympia oysters. The production of Pacific oysters as shown in Figure 3 for the period from 1930 to 1945, had largely come from North Sound oyster growing areas of Samish Bay, Padilla Bay, and Similk Beach. Then, as the Olympia production went down, the Olympia growers started planting some Pacific oysters as a matter of survival. Seed plantings of North Sound and South Sound were practically equal after the War until the last two or three years.

As the Shelton pulp mill was evaporating 80% of its liquor, the Olympia-Shelton area growers were able to stay in production even though their oysters were not in prime condition.

The situation of North Sound has grown progressively worse as the increase in capacity of pulp production at Bellingham has offset several times over the 10% reduction of sulfite liquor by the alcohol plant and evaporation.

The Anacortes plant has no treatment whatsoever. As a result, the North Sound production, including Similk Beach (an unpolluted area), is now down to about 50,000 gallons. Half of these will come from Similk Beach as a result of thousands of bushels transplanted there from both Samish Bay and Boundary Bay.

South Sound, with its pulp mill down, will this year produce 300,000 gallons Samish Bay which formerly produced 125,000 gallons annually is now down to 25,000 gallons a year.

The figure 4 on page 10 refers to Grays Harbor district. The lagooning of the sulfite liquor from the Hoquiam mill for six low water months, plus the evaporation of 80% of the liquor from the Cosmopolis mill, has made possible continued production of Pacific oysters in the area. Although, even under these conditions, production per case of seed planted has steadily dropped.

The production from a case of seed planted in Grays Harbor is just about half the production from the same seed planted in Willapa Harbor. The oyster industry is now maintaining itself in every area of the state, except Samish and Padilla Bays. The Pacific oyster industry was born in Samish Bay Great shell piles of the native oyster testify to the fact that the Indians shucked great quantities of the native oyster here before the white man came. Great reefs of oysters still were found in Samish and Padilla Bays after the white man came to that area. Early plantings had a production of 40 gallons per case of seed planted in Samish Bay, prior to the pulp mill installations. Today the area is down to 25,000 gallons per year of rather watery oysters.

We are submitting a chart showing the relationship between the increase in production of pulp at Bellingham and the decline of production

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BILL'S RECORDING SERVICE

of oysters by the leading Samish Bay company, the Rock Point Oyster Company. Both production records are well documented.

SALMON:

We will not go into great detail in discussing the pulp mills' statements on salmon. We would challenge the statements in paragraph 5, page 11, that domestic sewage has more than a very minor part in contributing to the decline of the fish runs. See attached schedule of percentage of BOD contributed by pulp mills and domestic sewage.

(1) The statistics taken from the 1956 Fisheries Statistical Report as shown on Figure 5, are completely inaccurate as regards Grays Harbor. The footnote below the Grays Harbor salmon landings on pages 34 and 35 of the 1956 Fisheries Statistical Report, show that the totals for inside catch of salmon came from the Chehalis, the Hoh, the Makah, Ozette, Quinault and Quillayute Indian reservations. All rivers but the Chehalis are unpolluted areas.

(2) The outside statistics include fish taken in the ocean and landed at Grays Harbor and LaPush. These fish are caught all the way from Eureka, California to Alaska, and just happened to be landed at Grays Harbor. These outside fish may originate in most any of the coastal streams. They have not the slightest significance as to propagation of fish in the Chehalis River.

It is calculated in our data on pulp mills attached that domesticated sewage in Grays Harbor contributed only 6% of the oxygen demand, while the pulp mills contributed 94% of the oxygen demand, during low water in the Chehalis River. During discharge of the Rennie Island Lagoon, the pulp mills contribute 99% of the oxygen demand in the river at Hoquiam.

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In paragraph 6, pages 12 and 13, great stress is laid on the fact that mature salmon are able to make the run through pollution blocks to their spawning grounds.

The mortality is not in the mature salmon, except in extreme cases, but is in the fingerling salmon, especially in the varieties such as Chinook and Silver, which spend many months in the inner bays before going to sea. The Washington Department of Fisheries biologists have estimated that not less than 50% and possibly 80% of the fingerling salmon fail to get through the pollution blocks at the mouth of the Snohomish River on their way to the ocean.

Paragraph 7, page 13, tells of the great benefit from the wood sugars in promoting the growth of fish food organisms. Our waters had adequate food for all forms of fish life long before the sulfite mills came to Washington.

Page 16, paragraph 11, relative to the Department of Fisheries and the Pollution Control Commission's toxicity tests as reported in Research Bulletin #1, "Toxic Effects of Sulfite Waste Liquor on Young Salmon". These tests were conducted in water which was aerated by adding oxygen to offset any oxygen deficiency which would be created by the sulfite liquor. This is an interesting experiment but certainly the conditions found in our polluted areas were not duplicated in these experiments. The salmon had only to contend with the toxic effect of the liquor, when as a matter of fact the mortality of young salmon is due to oxygen deficiency, caused by the oxygen demand of the sulfite liquor.

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In conclusion the pulp mills allege:

(1) That the decline and problems of fisheries have causes other than wastes.

(2) That certain alleged declines just do not exist.

In some cases there are other causes for declines of fish runs. The best example is the railroad blast of rock into the Fraser River, which practically destroyed the Sockeye run. In recent years a fish ladder was constructed through the rock, and the past six months have witnessed one of the largest Sockeye runs in all history -- some 16 million fish.

The bulk of these fish are produced in an area of only eight miles along the comparatively small Adams River. The young salmon spend their first year in Suswap Lake, immediately below the spawning areas. The 1958 Sockeye run exceeded 100 million lbs. of fish.

On a smaller scale, the depleted runs could be rehabilitated in our local streams on Puget Sound and in Grays Harbor, by removing the pollution blocks in these streams.

Dams and other obstructions are not a factor on most of these streams. The Fisheries Departmet maintains crews to remove log jams in spawning streams. The Fisheries Department helps nature with its hatchery production of fingerling salmon, but a large portion of the Fisheries Department's efforts are wasted when these same fingerling salmon suffocate in the many pollution blocks throughout the area.

The statement by the pulp mills that certain alleged declines just do not exist is a mis-statement, as was already set forth in regard to Grays Harbor, and their Figure #5.

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The concluding statement attempts to prove that spent sulfite liquor is really only colored water. The truth is that this "harmless"liquor will take the paint off a boat. It will eat up every metal, except the highest grades of stainless steel. Even the bronze propellers on the tow boats operating for the most part in the vicinity of pulp mills must be replaced every year.

We often wonder why pulp mills call their corrosive sulfite liquor "spent", when as a matter of fact it will eat up and destroy practically everything it touches. It is an acid. Any acid can be broken down into comparatively harmless separate elements. This does not prove that the acid is harmless.

We submit that the large scale demonstration in the Shelton area of the definite damage to shellfish, under natural conditions with none of the errors possible in a laboratory experiment, is the final answer to the toxic effect of more than 3 parts per million of sulfite liquor in the water over the oyster beds.

PACIFIC COAST OYSTER GROWERS ASSOCIATION
CABLE ADDRESS: PCOGA SEATTLE

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January 15, 1962

Washington Pollution Control Commission
Assistant Secretary James M. Quigley of Health, Education and Welfare
Mr. Murray Stein, Chief Enforcement Officer
Mr. Leanard Dwarsky, Northwest Control Officer

Gentlemen:

Our basic pollution law was passed under Governor Wallgren's Administration in 1945. Two years later, in 1947, the most complete analysis of the pulp mill pollution was published as the Commission's Report No. 12. The attached comparison with a similar analysis for the year 1958 was made by R. H. Bailey for use of the Oyster Association before the 1959 Legislature. Everything past page 3 deals with Port Angeles and Puget Sound.

Fingerling salmon leaving the Nooksack River on their way to the Ocean, turn either to the right or left and follow along the shore. Those that turn left enter the pollution block of Inner Bellingham Bay and suffocate and sink without a trace. This lack of oxygen is satisfied within a mile or two from the pulp mill and has no effect on oyster beds 6 to 16 miles away. Therefore the alcohol plant which ferments and eliminates 50% of the sugars with their high oxygen demand, gives no relief to the oyster grower.

At the time of this report, North Puget Sound oyster growers would have compromised for the piping out of the Bellingham digester liquor. We now believe that the mill should evaporate 85% and still pipe out the first half of the wash waters. We would still be satisfied with the piping out at Anacortes empounding at Burrows Island and discharge only on fast moving ebb tides in the deep water of Rosario Straits IF built and operated to our specifications.

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Very truly yours,
PACIFIC OYSTER GROWERS ASSOCIATION
R H Bailey
President

PACIFIC COAST OYSTER GROWERS ASSOCIATION

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January 7, 1959

TO - MEMBERS OF THE WASHINGTON LEGISLATURE

We enclose an accurate statement of the pulp mill pollution problem in the various districts of the State.

Kindly retain this as a reference book of information on this important subject. Reading time: 10 minutes.

You will find factual statements as to the increase in sulphite liquor pollution during the past ten years with full credit for the reduction due to evaporation methods of waste disposal.

The Weyerhaeuser Timber Company developed and installed the Magnesium-Oxide Process at Longview over ten years ago. It has since been installed by Weyerhaeuser at Cosmopolis. The Federal Government demanded this process in all Alaska pulp mills. Another installation has been made in New Hampshire.

Why should the State of Washington be denied this relief when the process was developed in our State? Chemicals are saved for re-use and ample heat is produced for evaporation of the liquor. This process will pay for the cost of the installation as well as interest on the investment.

Very truly yours,

PACIFIC COAST OYSTER GROWERS ASSOCIATION

By Edward J. Gruble
Edward J. Gruble, President

Enclosure

APPENDIX C2
BILL'S RECORDING SERVICE

ANALYSIS AND SUMMARY OF POLLUTION CONTROL COMMISSION'S PROGRESS REPORT NO. 12 OF AUGUST 1, 1947

BY THE PACIFIC COAST OYSTER GROWERS ASSOCIATION

This report carries the basic data on every pulp mill in the State of Washington. Since its publication there has been only one new sulphite mill built, namely the Weyerhaeuser magnesium oxide process mill at Cosmopolis. There has been a very large increase in the capacity of most of the sulphite process pulp mills since 1947. In this summary we will concern ourselves more particularly with the pulp mills using the sulfite process.

The report establishes the gallons of sulfite process waste liquor per ton of pulp as 2,400 gallons. It also accepts the research of William R. Barber of Crown-Zellerbach Corporation, who established that the SWL from one ton of pulp has an oxygen demand equivalent to the domestic sewage from a population of 3,200 people. Mr. Barber also reports the BOD of the various components of SWL on page three, and it should be noticed that the sugars demand 63% of the oxygen required by the SWL.

COLUMBIA RIVER

At the time of this report the slime growth, Sphaerotilus, was seriously handicapping fishing operations in the Columbia River. The authors came to the conclusion that the slime grows in places where the concentration of SWL is 50 ppm or greater, and also that the carbohydrates contained in the SWL are the cause of the slime growth in the Columbia River. Page 76, "Pollution of Interstate Waters, Lower Columbia River," September 1958. Mr. Charles Peterson of the Washington State Pollution Control Commission; "Laboratory and stream studies showed that slime growth occurs at concentrations of SWL well below 50 parts per million." The Columbia River pollution control is concerned only with health and fish, as there are no

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shellfish to consider.

A recent report by the U. S. Public Health Service stated that 87% of the pollution in the Columbia River was caused by the Washington pulp mills located at Camas, Vancouver, and Longview.

The sulfite pulp capacity at Camas has increased from 340 to 350 tons per day. The Vancouver sulfite pulp capacity has increased from 110 to 132 tons per day. The Weyerhaeuser Longview sulfite mill has increased its capacity from 250 tons to 450 tons per day, but this mill has been converted to the magnesium oxide process which evaporates 80% of its liquor and thereby decreases the pollution effect of the mill to 20%, or the equivalent of a 90 ton capacity mill without evaporation. The net result has been 18% reduction in the discharge of sulfite liquor, which now equals 1,372,000 gallons per day discharged into the Columbia River from these three sulfite mills. This liquor has an oxygen demand equivalent to a population of 2,065,000 people, as compared with the 400,000 population of Portland and vicinity.

There are only two known methods, in our opinion, of reducing the slime growth and the oxygen deficiency in the Columbia River:

(1) To convert the Camas and Vancouver pulp mills to the magnesium oxide or other evaporation process; or

(2) To install an alcohol plant which would reduce by 50% the sugars in the SWL, which in turn would reduce by half the carbohydrate food for the slime, and also reduce by half the BOD.

GRAYS HARBOR

The Grays Harbor situation has been improved somewhat by the enlarging of the Rennie Island Lagoon since 1947, to a capacity of 260 million gallons. This lagoon can hold the SWL from the Hoquiam plant throughout the low-water periods for discharge on the flood stages of the Chehalis River. There is evidence of some seepage from the lagoon into the river channel during the low-water periods.

Since 1947 the Hoquiam pulp mill has increased its capacity from 285 tons per day to 440 tons per day. The new Weyerhaeuser magnesium oxide process plant at Cosmopolis has been built and has a SWL discharge equivalent to an 80 ton mill without evaporation. This is an increase of 58% in the capacity of the Hoquiam mill, and an increase of over 75% in the total discharge of SWL from the two pulp mills since 1947.

The serious pollution block is in the vicinity of Hoquiam. Even assuming that all but 20% of the sulfite liquor is either evaporated at Cosmopolis or lagooned at Hoquiam, the SWL discharged would have an oxygen demand of 94% of the total, and the Aberdeen and Hoquiam domestic sewage would contribute 6% of the oxygen demand. During the periods of discharge of the Rennie Island Lagoon, the SWL would cause 99% of the oxygen deficiency in the Hoquiam area.

The oyster-growing areas are far removed from the oxygen-deficient waters. The are affected, however, by the toxic effect of the SWL. The oyster is comparatively dormant during the colder weather when the liquor is not lagooned. Even so, the production of oysters per case of seed planted in Grays Harbor is very low.

We believe the solution to the Grays Harbor problem would be to pipe all the effluent from both pulp mills to the Rennie Island Lagoon and then bypass Grays Harbor by a sewer line direct to the ocean. This would follow the recommendation of the pulp mills' own 13-year research, "that disposal by ponding or by piping the liquor to a large scale dilution site may be desirable pending further development of treating methods".

Piping out to disposal sites within reasonable distances is by far the most economical method of sulfite waste liquor disposal.

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PORT ANGELES

The inner harbor of Port Angeles has a very serious oxygen deficciency and high SWL readings. This was recently reported in great detail in Technical Bulletin No. 23, published in 1957.

Three sulfite pulp mills in Port Angeles -- Rayonier, Fibreboard, and Crown-Zellerbach -- now have capacities of 365 tons, 60 tons, and 95 tons, respectively. The 365 ton production by Rayonier is a 52% increase in production since 1947. Fibreboard production has remained constant. Crown-Zellerbach has had a 70% increase in capacity since 1947, but has built a new sewer line discharging their effluent in the Straits of Juan De Fuca, outside of Ediz Hook. This installation follows the recommendation of the research study made by the University of Washington for the various pulp mills.

The other two pulp mills, with a capacity of 425 tons, continue to discharge their effluent into the inner harbor, with an overall increase of 40% in the capacity of these two mills since 1947. The solution of this problem is for the other two mills to follow Crown-Zellerbach's example and construct a trunk sewer to carry their effluent outside Ediz Hook and to impound and discharge only on fast-moving tides to dilute and carry the SWL completely out of the area.

EVERETT HARBOR (Port Gardner Bay)

No new sulfite pulp mill has been built in Everett since 1947. In 1947 Everett had the Soundview Pulp Company, now the Scott Paper Company's pulp mill, of 550 ton capacity, and the Weyerhaeuser sulfite mill with a 250 ton capacity.

The Scott Paper Company's mill now produces 800 tons per day, or equivalent to the capacity of both pulp mills in 1947. The increase of sulphite pulp production, therefore, is equivalent to a new 350 ton pulp mill on the Everett waterfront.

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The Everett mills have no treatment plants, and now discharge 2,760,000 gallons of concentrated liquor per day, with an oxygen demand equivalent to a population of 3,680,000 people. The population of Everett is 34,000 people, which would indicate that domestic sewage contributes less than 1% of the pollution in Everett Harbor. The two pulp mills have joined in building a pipeline to conduct their more concentrated solutions of SWL to deep water out 3,000 feet. This measure was authorized by the Pollution Control Commission as a temporary measure. It has not reduced the pollution in the area, although it has tended to keep the more concentrated liquor off shore and out of sight. Numerous fish kills have been reported.

The situation was best described by Earl Coe, Chairman of the Washington Pollution Control Commission, two years ago, when he said, "Industries located on the sound and rivers running into it have done nothing for the past eight years to correct the situation except to push their disposal lines further into the water they are polluting."

This pollution block at the mouth of the Snohomish River is estimated by fisheries biologists to destroy 50% of the fingerling salmon produced in the Snohomish River. The Snohomish is one of the most important salmon propagating streams in the state of Washington.

The Everett situation should be corrected by evaporation of the sulfite liquor by either the magnesium oxide process or other evaporation methods. These pulp mills are now under orders in their temporary permits to submit plans for evaporating their liquor. They are now in default in carrying out the conditions of the temporary permit.

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SOUTH SOUND (Shelton-Olympia Area)

Page 9 of the report carried an optimistic outlook for the Shelton area. The prophesied results were not attained. The production of Olympia oysters in the Olympia to Shelton area has declined from 319,900 pounds in 1935 to 17,647 pounds in 1957.(Page 16 -- Statistical Report). The Olympia oyster continued to have sets of spat but under the conditions that prevailed until recently, the major portion of these seed oysters would die within a matter of months. The Olympia oyster industry had become all but extinct in the 20 year period.

During this period, the engineers of the Pollution Control Commission and the Washington Department of Fisheries and the University of Washington Oceanographic Department have all cooperated in current studies and sampling of the waters in this area. The Oceanographic Department perfected an automatic sampling device which took samples of the water every hour of the day. These samples were then collected and analyzed for the various factors which contribute to pollution.

The Shelton pulp mill was shut down in the summer of 1957 due to lack of market. The tests have been continued and the pollution department now has an accurate comparison of the water analysis during the mill's operation and since its shutdown.

The Shelton area has in effect been a large scale test area which has proven beyond any doubt that the Olympia oyster industry cannot survive commercially with over two or three parts per million of sulfite liquor. There has been no other change in the environment of the Shelton area waters except the removal of the SWL.

The seed catch of Olympia oysters in the past two years has been the biggest in 30 years. The resulting oysters are thriving. As the Olympia oyster production declined, the operatores brought in the large Pacific type oysters as a matter of survival in the oyster business. Since the oyster beds may be used only for the

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growing of oysters, some sort of salvage crop was essential. The Pacific oyster, produced from seed imported from Japan, is a very hardy variety, and apparently can survive the concentration of SWL that will kill most Olympia oysters. Although Pacific oysters have survived, their growth until the shutdown of the pulp mill was stunted, and since the shutdown a two year old oyster is twice as large as formerly.

As to conditions: Prior to the shutdown, Pacific oysters tended to be watery and it took 25% to 40% more bushels of oysters in the shell to make 100 gallons than it does since the shutdown of the pulp mill. Pacific oysters in this area are now of prime condition.

Fishermen advise that herring are again seen in the vicinity of Shelton for the first time in many years; also that small shrimp are seen along the beaches for the first time in 30 years.

What is the solution to this problem? There is no solution with the Shelton pulp mill in operation. The pulp mill was improperly located in the first place. There is no river running into Oakland Bay which would provide a current to carry the water out of the area. The tide now goes out 20 miles and the same water comes back. There is oscillation in these waters, but no appreciable movement out of the area. The University of Washington Department of Oceanography, estimates that it takes seven years for a complete inter-change of water in South Sound.

The Shelton pulp mill installed an evaporator which the operators claimed gave almost complete evaporation of the SWL. As a matter of fact they could not possibly eliminate more than 80% of the SWL, as that is all that the most modern mill in the state, at Cosmopolis, is able to do. See page 41, Technical Bulletin #21, The 20% of SWL which escapes with the wash waters builds up concentrations with high toxicity before being broken down by aeration and biological action the sea water.

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The demonstration at Shelton has established the exact limits above which sulfite liquor concentrations must not be allowed over oyster beds. The damage is not in the killing of the oysters. The damage is the holding of the animal in a stunted and emaciated condition which effectively destroys the chance of such oyster beds competing commercially in the business.

NORTH SOUND AREA (Bellingham and Anacortes pulp mills affecting oyster beds in Samish and Padilla Bays)

Page 9 states for the Bellingham area that the SO_2 stripping towers and alcohol plant have resulted in a pollution reduction of 50%, and adds that complaints from oyster growers located six to twelve miles away should be a thing of the past.

According to Dr. Irwin A. Pearl on page 32 of the September 1943 issue of Pacific Pulp and Paper Industry, the total sugars of pulp liquor are 19.99 grams per 1000 grams (one liter). This is just under 2% of sugar in the liquor. 20% of the liquor and therefore 20% of the sugars escape in the wash waters. Approximately 60% of the remaining sugars are fermentable, with the result that the Bellingham pulp mill is able to convert only one half of the sugars into alcohol. This, according to William R. Barber's statement on page 3, would indicate that 31-1/2% of the BOD of sulfite liquor had thereby been eliminated.

Coupled with the further reduction of the BOD by the SO_2 and other liquor evaporated in the by-products plant, it is possibly a fair statement to say that 50% of the normal oxygen demand of their sulfite liquor has been eliminated. The statement that this would have any effect on oyster beds six to twelve miles away is completely in error.

Oyster beds have never been affected by the BOD of pulp liquor. The oxygen characteristics of the water have become normal within a mile or two of the pulp mill. Oysters are only affected by the toxicity of the SWL. This toxicity could very well persist if all of the solids could be removed from the sulfite liquor.

The oyster industry in Samish and Padilla Bays which formerly exceeded the South Sound industry, both in plantings of seed oysters and in production, have now declined to a mere 25,000 gallons per year, while the South Sound area will produce this year over 300,000 gallons.

Concentration of liquor in Samish and Padilla Bays where the oyster beds are located is shown in Technical Bulletin No. 22, and its supplementary records of sampling and tests.

A chart is enclosed showing curves of the Bellingham pulp mill's production from 1939 to 1958, together with the production of oysters by the Rock Point Oyster Company for the same period. The alcohol plant was built in 1945, and in 1944 the Bellingham mill's production was down to 271 tons per day, with the sulfite liquor produced at 799,200 gallons per day. The present capacity of this plant is 475 tons per day, or 1,140,000 gallons of pulp liquor per day.

Various by-product plants are fermenting or evaporating 10% of the liquor, which still leaves the full toxic effect of 1,026,000 gallons of liquor being discharged daily at Bellingham. Add to this 288,000 gallons of sulfite liquor discharged daily at Anacortes, and we have a total of 1,314,000 gallons of concentrated sulfite liquors being discharged into the water with its full toxic effect, or a 28% increase in toxicity since the alcohol and other by-products plants were installed.

The Anacortes pulp mill had plans for complete treatment as outlined in Progress Report #12 on page 11. The process was to recover alcohols and sugars as a yeast food, as well as lignins for fuel. This project never got off the drawing boards. The mill continues to dump its sulfite liquors without any treatment whatsoever. The mill finally built a pipe line to discharge the liquor on the north side of Fidalgo Island instead of to the east. This project offered not the slightest relief to the oyster beds in Padilla and Samish Bays. The continuous discharge of the liquor means that half the time it is going inshore over the oyster beds.

$500,000 worth of seed oysters have been imported and planted in Samish and Padilla Bays in the past seven years. Many of these oysters are now 6-1/2 years old, and in a stunted and emaciated condition which precludes the possibility of harvesting and marketing the crops.

Oysters transplanted from Samish and Padilla Bays to Similk Beach, just south of Fidalgo Island, immediately improve in condition and come to prime quality within six or eight months. This has also been true of oysters moved from Padilla Bay to Hood Canal near Belfair, and to Boundary Bay and Comox, British Columbia.

Crab landings in the area from Bellingham to Everett are now down to 10% of the average landings from 1944 to 1951. During this same period crab landings have increased in the coastal bays and off-shore areas.

With the Shelton pulp mill shut down and the treatment at Cosmopolis and the lagooning at Grays Harbor for half the year, the greatest direct damage by sulfite solutions to other industries is in the Bellingham-Anacortes area.

The solution to the problem is quite simple. When the pulp mills' research engineers recommended "that disposal by ponding or by piping the liquor to a large scale dilution site may be desirable pending further development of treating methods", they must have had in mind this North Sound problem. They have given the answer. It is a matter of getting the SWL and its toxic effect out of the inner bays and into large volumes of water which can adequately disperse and dilute the liquor to concentrations which are not harmful to marine life.

The Anacortes mill should pipe their liquor to a reservoir at the west end of Fidalgo Island or the adjoining Burroughs Island. The liquor should be stored for as much as five days during periods of small tide movement. It should then be discharged into Rosario Strait only on the start of a fast-running outgoing tide, which will put the liquor into large bodies of water in the Straits of Juan de Fuca.

The Bellingham mill has a similar problem. The liquor, except for the 10% which is fermented or evaporated, should be piped to the most Westerly point of Lummi Island. It should then be impounded for up to five days during periods of small tide movements and discharged only on the start of fast Northerly-running tides which will carry it into the Straits of Georgia. This will permit dilution in large volumes of water as the Straits of Georgia approximate the width and depth of the Straits of Juan de Fuca. Estimate of costs is attached hereto.

Both the Bellingham and Anacortes pulp mills were ordered to submit plans for evaporation of their liquor within one year from the date of their temporary permits issued on June 6, 1956. The Anacortes temporary permit was extended for one year and the mill has been in default since June 6, 1958. The Bellingham temporary permit was extended for two years and that pulp mill could be in default on June 6, 1959.

The oyster industry has attempted to be realistic in its demands, in order that it might live on the one hand and that the pulp mills can continue to prosper on the other hand. We are convinced that the piping-out recommendation of the research scientists was made with the North Sound situation in mind. We are also convinced that piping out would solve the pollution problem in Samish and Padilla Bays, if coupled with impounding and discharge only on fast moving tides. The Bellingham pulp mill engineers believe the costs would be slightly higher than the attached estimates, but would agree that these piping out costs would be only a fraction, ten to fifteen percent, of the cost of converting to the magnesium-oxide process. The small capacity Anacortes pulp mill would not justify the installation of the magnesium-oxide process but would amply justify piping six miles Westerly for

APPENDIX C13
BILL'S RECORDING SERVICE

impounding and discharge on tides to carry the SWL into the Straits of Juan de Fuca. Mr. Walter Miller, the mill manager, testified at the Bellingham Pollution Commission meeting that Anacortes produced $5,000,000.00 worth of pulp per annum with a cost for logs of $1,500,000.00 and less than $1,000,000.00 for payroll. These are the two largest items of expense.

Such an operation can certainly justify a cost of $250,000.00 for piping out their liquor although the expenditure of several million dollars for evaporation might be out of the question for so small a pulp mill. The City of Anacortes has piped in water over fifteen miles from the Skagit River in order to supply 7,000,000 gallons per day to this pulp mill. This was done to give the mill pure water. It would seem that the pulp mill could afford to pipe out 3% or 4% of that amount in order to give clean water to our seafood industries.

PRELIMINARY COST ESTIMATE OF FACILITIES NECESSARY FOR PIPING OUT 700,000 gallons of SWL from Bellingham and 200,000 gallons SWL from Anacortes for each 24-hour period. By R. H. Bailey, Registered Engineer.

Bellingham Project:

20,000 gallon creosoted wood stave tank with mild steel binding rods incased in plastic hose	$ 4,500.00
74,000 feet of 12 inch creosoted wood stave pipe bound with stainless steel wire for head of 135 feet, price delivered on job	503,500.00
Three million gallon receiving reservoir on Lummi Island (1/2 block 10 feet deep)	20,000.00
300 feet of 24 inch creosoted wood stave pipe bound with stainless steel wire for discharging liquor at rate of 1,300,000 gallons per hour	6,000.00
Normal cost of laying 74,000 feet of 12 inch pipe	74,000.00
Two stainless steel centrifugal pumps, each direct connected to 25 H.P. motor with capacity of 500 gallons per minute for either unit (Continuous Service annual power cost $1,845.36)	5,000.00
The above are very accurate estimates confirmed by manufacturers of these items. The intangibles are: Cost of right-of-way; dredging trench for burying pipe across Hale Passage and the Nooksack River and weighting pipe laid under water, Minimum $75,000.00, Maximum $150,000.00	150,000.00
Total.......	$763,000.00

Anacortes Project:

10,000 gallon tank, similar to above	$ 3,000.00
30,000 feet of 6 inch creosoted wood stave pipe stainless wire bound for 200 foot head	119,700.00
One Million gallon receiving reservoir on Burrows Island (1/6th city block 10 feet deep)	25,000.00
300 feet 14 inch discharge pipe similar above discharge rate of 350,000 gallons per hour	4,000.00
Normal cost of laying 30,000 feet of 6 inch pipe	30,000.00
Two stainless steel centrifugal pumps with 15 H.P. motors with capacity of 150 gallons per Minute (Continuous Service annual power cost $1,276.80)	3,500.00
Intangibles: Cost of right-of-way; Crossing Burrows Bay Channel and weighting pipe under water, Minimum $30,000.00, Max. $60,000.00	60,000.00
Total.......	$245,200.00

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BILL'S RECORDING SERVICE

DATA ON PULP MILLS OF WESTERN WASHINGTON

	Capacity		Increase	Gallons	Population	Remarks as to
	1947	1958	%	SWL	Equivalent	pulp liquor
P.S. Pulp & T. Co.	375	475	21%	1,140,000	710,000	1% fermented
Bellingham			90%	1,026,000		9% evaporated
Scott Paper Co. Anacortes	85	120	41%	288,000	384,000	No treatment
Totals for area	460	595	29%	1,314,000	1,094,000 or	96% of B.O.D.
Domestic Sewage					45,240 or	4% of B.O.D.
Everett: Gardner Bay						
Scott Paper Co. Sulphite	550	800	45%	1,920,000	2,560,000	No treatment
Weyerhaeuser Sulphite	250	350	40%	840,000	1,120,000	No treatment
Sulphate	None	300		sulphate	100,000	Evaporate 80%
Simpson Sulphate	75	75		sulphate	45,000	Evaporate 80%
Totals for area	800	1150	43%	2,760,000	3,825,000 or	99.09% of BOD
Domestic Sewage					35,000 or	0.91% of BOD
Port Angeles Harbor						
Rayonier, Inc. Sulphite	240	365	52%	876,000	1,168,000	No treatment
Fibreboard Products	65	60	-8%	144,000	192.000	No treatment
Totals for Harbor	305	425	40%		1,360,000 or	99.2% of BOD
Domestic Sewage					11,700 or	0.8% of BOD
Crown Zellerbach Straits of Juan de Fuca nearby	56	95	70%	228,000	304,000	Piped to large scale dilution site.(Straits)
South Sound (Shelton)						
Rayonier, Inc. Shelton	200	350	75%	168,000	224,000-	Evaporates 80% SWL Now shut down
Domestic Sewage					5,650 or	2½% of BOD when mill operates.

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BILL'S RECORDING SERVICE

DATA ON PULP MILLS OF WESTERN WASHINGTON(continued)

	Capacity 1947	Capacity 1958	Increase %	Gallons SWL	Population Equivalent	Remarks as to pulp liquor
Grays Harbor						
Weyerhaeuser Cosmopolis		400		192,000	256,000	Evaporates 80% SWL
Rayonier, Inc.	285	440	58%	~~1,056,000~~	~~1,408,000~~	~~No treatment~~
Hoquiam (Evaporators installed in late 1961)				211,000	281,000	but impounds 80% during low water.
Credit already given for lagooning --------------					537,000	
Totals for area, average					~~1,664,000~~	
Total when lagooning					537,000 or	94% of BOD
Domestic Sewage					31,000 or	6% of BOD
Columbia River						
Weyerhaeuser Equivalent to Longview	250	450	(90)-64%	216,000	288,000	Evaporates 80% SWL
Zellerbach Camas	340	350	3%	840,000	1,120,000	No treatment
Columbia River Paper Vancouver	110	132	20%	316,800	422,400	No treatment
Longview Fibre Sulphate	350	704	100%	sulphate	235,000	Evaporates 80%
Totals for area				1,372,800	2,065,400	87% of BOD
Other pollution, according to U. S. Public Health ------					308,600	13% of BOD
Tacoma						
St. Regis Paper Sulphate	275	400	45%	sulphate	150,000	Evaporates 80%
West Tacoma						
News Print Sulphate	50	134	268%	sulphate	50,000	Evaporates 80%

SWL - Sulphite Waste Liquor

BOD - Biochemical Oxygen Demand, which produces an oxygen deficiency in the receiving waters within a few miles (usually two) of the outfall. The water will become aerated and normal past this area in the vicinity of the outfall and thereafter the damage comes from the toxicity of the SWL.

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NORTH PUGET SOUND PULP AND SULPHITE LIQUOR PRODUCTION

Year	Anacortes-tons		Bellingham-tons		Total Pulp-tons		Sulphite Liquor
	Yearly	Daily	Yearly	Daily	Yearly	Daily	Gallons per day
1926	8,355	23	1,230	3	9,585	26	
1927	10,245	28	8,075	22	18,320	50	62,400
1928	14,240	39	16,561	45	30,801	84	120,000
1929	16,118	44	25,858	71	41,976	115	201,600
1930	16,167	44	26,576	73	42,763	117	276,000
1931	8,725	24	30,142	82	38,867	106	280,800
1932	NONE	0	28,528	78	28,528	78	254,400
1933	8,998	24	33,479	92	42,477	116	187,000
1934	22,377	61	32,899	90	55,276	151	278,400
1935	20,487	56	33,915	93	54,402	149	362,400
1936	25,730	70	37,298	102	63,028	172	357,600
1937	25,096	68	38,281	105	63,377	173	412,800
1938	NONE	0	47,682	131	47,682	131	415,200
1939	6,839	19	87,577	240	94,416	259	314,400
1940	27,297	75	100,839	276	128,136	351	621,600
1941	27,375	75	143,038	392	170,413	464	842,400
1942	22,630	62	153,546	421	176,176	482	1,113,600
1943	9,125	25	101,337	278	110,462	303	1,156,800
1944	22,630	62	98,986	271	121,616	333	727,200
1945	27,375	75	97,641	268	125,016	343	799,200
1946	27,375	75	84,257	231	111,632	306	823,200
1947	27,375	75	112,083	307	139,450	382	734,400
1948	27,375	75	128,370	352	155,745	427	916,000
1949	27,375	75	97,171	266	124,546	341	1,024,800
1950	29,200	80	129,498	355	158,698	435	818,400
1951	29,200	80	136,949	375	166,149	455	1,044,000
1952	29,200	80	137,084	376	166,284	456	1,092,000
1953	31,000	85	144,213	395	175,213	480	1,094,200
1954	31,000	85	152,875	419	183,875	504	1,152,000
1955	32,850	90	161,448	442	194,298	532	1,209,600
1956	32,850	90	161,760	443	194,610	533	1,276,800
1957	36,500	100	158,783	435	195,283	535	1,279,200
1958(½)	18,250	100	64,970	356	83,220	456	1,284,000
							1,094,200

Daily production is computed as 1/365th of the yearly production. Maximum daily capacity is 120 tons at Anacortes and 480 tons at Bellingham or 600 tons per day. Digester liquor is computed at 2,400 gallons per ton of pulp, the figure used by the Pollution Control Commission in its Progress Report No. 12.

The above production figures were given in a sworn statement by Mr. De Long the manager of both pulp mills until November 15, 1940 when Scott Paper Company bought the Anacortes mill. Production figures for Bellingham are published in the annual statements of the Puget Sound Pulp and Timber Company. Mr. Foremen Scott Paper manager refuses to release the Anacortes production figures since 1940 and estimates have therefore been made for those years on Anacortes production which are believed to be accurate within 10% for the total production.

The alcohol plant at Bellingham ferments 1% of the sulphite liquor and the Lignosite evaporator eliminates a maximum of 9% more of the sulphite liquor when there is a market for the products. The toxic effect of the liquor may be reduced as much as 10% of the Bellingham liquor discharge which still leaves a discharge increase of sulphite liquor of over 600% as compared with 1932.

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BILL'S RECORDING SERVICE

R. H. BAILEY, PRESIDENT
H. J. WATERS, OPERATING MANAGER

PIONEER OYSTER COMPANY

GROWERS AND PACKERS OF NORTH PUGET SOUND OYSTERS

LLOYD BUILDING • SENECA 0996
SEATTLE 1, WASHINGTON

January 15, 1962

Washington Pollution Control Commission
Assistant Secretary James H. Quigley of Health, Education and Welfare
Mr. Harvey Stein, Chief Enforcement Officer
Mr. Leonard Dwarsky, Northwest Control Officer

Gentlemen:

Our Company sued the Puget Sound Pulp & Timber Co., then owner of both Bellingham and Anacortes pulp mills, in 1939: got to trial in 1941: pulp mill pick-up tests showed that we still had 1,250,000 bushels of oysters on our beds; We sold emaciated oysters for transplanting for 10¢ per bushel to finance our suit ($25,000.00) and the pulp mill spent $275,000.00 and bragged about it: they won.

A year later, the War Production Board shut down the Anacortes pulp mill and Bellingham ran on short production. Total production, as shown of the attached list, dropped from an average of 482 tons per day in 1942 to 303 tons per day in 1943. We made test-try opening in early Spring of 1943 without success but by June were able to market the oysters. We salvaged a half million dollars gross from Padilla Bay in the next three years after which the oysters were cleaned up and the pulp mill production went up.

We held onto our land and paid the taxes but had no income. In 1950, based on our salvage experience, we went to the Pollution Commission appointed by Governor Langlie and offered to replant Padilla Bay if the Commission would order the pulp mill to pipe out its concentrated digester to the West of Fidalgo or Burrows Isaland and discharge only into deep water on a fast running ebb tide. The attached estimate of cost indicates that the net profit of ninety days run of the Anacortes Pulp Mill would have paid for the installation. The Pollution Control Commission agreed but the attached transcript of the correspondence shows that they did not back up their order or their Director, Mr. Eldridge.

We planted $160,000.00 worth of seed oysters imported from Japan in 1952-53-54 &55 and spent an additional $40,000.00 in other expenses. We lost every dollar of that money and Mr. Waters and I paid the note a year ago, which we had signed as endorsors. According to the statements of its own officials, the Anacortes Pulp Mill made over 30% per year on its annual production of $5,000,000.00 worth of pulp. We believe that they should read what the Constitution says about Protection of Property.

Very truly yours,

R H Bailey

For Pioneer Oyster Company

APPENDIX D1
BILL'S RECORDING SERVICE

AGENDA

WASHINGTON POLLUTION CONTROL COMMISSION

Olympia, Washington

August 8, 1957

COMMISSION MEMBERS

Milo Moore | Earl Coe, Chairman | Bernard Bucove, M. D.
John Biggs | Emil C. Jensen, Tech. Sec. | Joseph D. Dwyer

Alfred T. Neale, Acting Director

Edward P. Donnelly, Assistant Attorney General

Staff

W. W. Saxton, Associate Engineer
James Behlke, District Engineer
D. Peterson, Supervisor of Survey
S. Boughner, District Engineer

Afternoon Session

1:30 P.M. COOS BAY PULP & PAPER, Anacortes (Subsidiary of Scott Paper Co)

Subject: A company requested hearing regarding qualifications for a permanent waste discharge permit.

A. Alfred T. Neale, Statement of Commission Requirement

B. Presentation by Industry

C. Discussion
References attached for information

1. Industry
2. Problems
3. History
4. Commission Requirements
5. Abstract of pertinent correspondence
6. Speech to Oyster Growers by R. H. Bailey in 1952

Adjourn general session, commence executive session

APPENDIX D2
BILL'S RECORDING SERVICE

ABSTRACT
OF
PERTINENT CORRESPONDENCE

July 20, 1944: Memo to M. S. Campbell from Dr. C. J. D. Brown: "…. there is very serious mortality in the oysters in Fidalgo Bay.
...All evidence points to pollution from pulp mill at Anacortes.
...there were no other industries which could have been responsible and no disease which concievably could account for this mortality.."

Aug. 13, 1948: Letter to Herman L. Hanson, Coos Bay Pulp from E. F. Eldridge: "...It is, of course, expected that ultimately some other method of disposal for this waste will be provided..."

Sept. 30, 1949: Letter to Coos Bay Pulp Corp. from E. F. Eldridge: "...the matter of construction of the new mill has been dropped or at least project well into the future. Your problem cannot wait for this development and it is imperative that some action be immediately initiated toward a solution.....prepare...a report and proposal for the removal of SWL discharge from your mill, either on temporary basis to Guemes channel, or by some permanent method of elimination or recovery...

Dec. 1, 1949: Letter to E. F. Eldridge from Graham of Bogle, Bogle & Gates, Attorneys: "...we hope that the Commission will not at this time undertake a program calling for the removal of sulfite waste liquor discharge from the Anacortes plant..."

May 22, 1950: Letter to E. F. Eldridge from J. R. Lewis of CBPC;
"...We have never found waste liquor over the oyster bed areas in heavy concentrations....All reports and studies over the years...point to same conclusion, i.e. that SWL from this plant is not damaging any present culture of oysters or sea life...."

Nov. 28, 1950:, Resolution of meeting of PCC Nov. 28, 1950. "...resolved that the Pollution Control Commission issue an order directed to the CBPC, Anacortes requiring that structures, equipment, or other facilities to reduce the pollution resulting from the discharge of SWL to meet the requirements established by the Commission be installed and that this installation be substantially completed by June 1, 1951."

Jan. 2, 1951: Letter to PCC from CBPC: "...corporation will voluntarily undertake the construction of a sewer effluent line for the discharge of the SWL...provide for a constant discharge into Guemes channel.....installation....shall be without prejudice to the Commission taking such action in the future as it may deem necessary...should this installation prove to be unsatisfactory.....it is understood no order will be issued...pursuant to resolution dated Nov. 28/50...and that such resolution and any determinations purporting to be made thereby shall be rescinded..."

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Jan. 12, 1951: Letter to Graham of Bogle, Bogle & Gates from E. F. Eldridge: "...the Commission at its meeting yesterday favorably considered the draft of the letter which you have prepared for the Coos Bay Pulp Corporation..."

Jan. 19, 1951: Letter to CBPC from E. F. Eldridge: "Inasmuch as the CBPC...has agreed...to proceed voluntarily...Commission Resolution...Nov. 28, 1950, is hereby recalled..."

Jan. 19, 1951: Letter to CBPC from E. F. Eldridge: "...in accepting the agreement for constant discharge of the waste rather than discharge only during the flow of the ebbing tide, does so on a trial basis...the Commission retains its right and authority to take such action as is considered necessary..."

July 31, 1952: Letter to E. F. Eldridge from CBPC: "...SWL disposal system is in steady operation and can be observed at your convenience..."

Nov. 27, 1953: Letter to E. F. Eldridge from R. H. Bailey of Pioneer Oyster Co.: "...have spent over $90,000 replanting Padilla....contemplate spending $50,000 more next spring...the real damage to an oyster bed from a slight concentration of digester liquor shows up when we begin to market resulting oyster meats. Slight pollution can cut down the production from 10% to 50%...all we ask is the construction of a tank to which concentrated liquor could be bypassed when tide is coming in.....believe it is a "must" at Anacortes to get (discharge) well out (into Guemes channel)..."

Dec. 16, 1953: Letter to L. S. Burden of Scott Paper Co. from E. F. Eldridge: "...our original request...included holding of spent liquors for discharge on ebb tide....the pipeline was constructed without the tank, however..."

Feb 13, 1955: Letter to E. F. Eldridge from R. H. Bailey, Pioneer Oyster Co.: "...they have never installed the storage for the concentrated liquor so it could all be discharged on an ebb tide.....We now have $160,000 worth of seed oysters planted in Padilla Bay..."

May 3, 1956: Letter to E. F. Eldridge from R. H. Bailey: "...Our position is rather desperate...it is very urgent that we get this impounding tank in during the summer and also either the liquor be piped out to deep water as in Everett or that it be piped along the waterfront...so that it gets out of the eddy at the foot of Main street..."

May 22, 1956: Letter to Bailey from K. R. Jones, PCC: "...Commission has advised mill of various requirements...include installation of a holding tank...facilities which will reduce fiber losses...installation of a deep water outfall..."

June 7, 1956: Letter to CBPC from E. F. Eldridge: "...Transmitted herewith is temporary permit T-72...one of the provisions for a permanent permit is storage of strong sulfite cooking liquors and discharge during ebb tide by way of the... diffuser line. This is considered essential for the complete protection of oyster beds in the Fidalgo and Padilla Bay areas..."

Aug. 29, 1956: Memo to files from A. T. Neale: "...studies are underway (at CBPC) to determine the size of a SWL holding tank and also to discover the direction of the current at the existing outfall during complete tidal cycles..."

Reproduced from best available copy.

Dec. 17, 1956: Letter to E. F. Eldridge from Newell Emery, Tech. Dir. of CBPC: "...On nov. 30, 1956, a job request for a 400,000 gallon holding tank (wood) together with the necessary auxiliary equipment was submitted to the company officials (cost $139,380.00)..."

June 10, 1957: Letter to Newell Emery, CBPC from A. T. Neale, PCC: "Temporary waste discharge permit T-72 is hereby extended for a period of 1 year, so as to allow additional time for compliance with item 8 of the permit..."

June 13, 1957: Memo to A. T. Neale from James F. Bahlke: Regarding phone call from Mr. Bailey: "...he explained that the oysters are in bad shape up north (190-200/gallon), very small and watery.."

June 28, 1957: Letter to Emery of CBPC from A. T. Neale: "...each individual item of temporary permit T-72 is presently in effect. Special reference is made to item No. 7 and No. 8..."

REPORT TO PACIFIC OYSTER GROWERS' ASSOCIATION MEETING AUGUST 15, 1952

BY

MR. R. H. BAILEY

"Pumps and approximately one mile of pipeline have been installed to divert the discharge of digester liquor from Fidalgo Bay to Guemes Channel on the Anacortes waterfront. This installation falls far short of the plans for disposal which were agreed to with our representatives on November 28, 1950. At that time, the Washington Pollution Control Commission authorized the issuance of an order to the Pulp Mill calling for the impounding of the liquor and the discharge on the start of the ebb tide in order that it would go well out into the Straits of Juan de Fuca and be mixed with large volumes of water which would render it harmless. Somewhere along the line, influence was brought to bear, the plans were changed without notice to your Committee or any member of the oyster industry and the most important feature of the project (the impounding basin) was eliminated. The net result is that the same quantity of digester liquor is being discharged into the water of that area within one mile of the former point of discharge. This is a perfectly asinine proceeding without the slightest benefit to oyster beds in that area and a betrayal of every oyster grower in the area. We recommend that the new Pollution Committee be authorized to meet with the Governor of the State of Washington to determine if the assurances of his Departments are to be relied on in the future and to demand the completion of the comprehensive plan of disposal as originally agreed to by the Washington State Pollution Control Commission."

The proposed meeting with the Governor was not brought about until April 25, 1956 when a mass meeting of oyster growers was held with Governor Langlie and his Pollution Commission with the result that on June 6, 1956, a temporary permit was issued to the Coos Bay Pulp Corporation ordering the mill to proceed as follows:

"Sulphite waste liquors are to be stored and discharged only during outgoing tides in accordance with a plan to be approved by the Commission. This facility to be in operation within three months" "An analysis to be made to determine feasibility of installation of deep water outfall at location West of existing installation."

Note: January 15, 1962

The Pollution Commission's recent abstract of information relative to Coos Bay Pulp Corporation, dated August 8, 1957, gives a full history of years of letter writing and calculated evasion by the Coos Bay Company. The situation today is the same as it was on August 15, 1952, when R. H. Bailey reported to the annual meeting of the Oyster Growers Association:

R H Bailey

APPENDIX D5
BILL'S RECORDING SERVICE

ABSTRACT
OF INFORMATION RELATIVE TO COOS BAY PULP CORPORATION

INDUSTRY: Coos Bay Pulp Corporation, wholly-owned subsidiary of Scott Paper Co., located on the East Waterfront (Fidalgo Bay) of Anacortes, one mile south of Guemes channel.

This mill produces an approximate average of 118 tons of pulp per day from wood which is 80% cedar, 15-17% hemlock and 2-5% pine. They discharge approximately 7 million gallons of waste per day to Guemes channel and Fidalgo Bay.

PROBLEM: Complaints from oyster growers in Fidalgo and Padilla Bays. Allegations that sulfite waste liquor discharged by the industry results in damage to oyster crops.

HISTORY: Complaints of damage to oyster production have recurred during the past 15 years or more. By Commission action and insistence the industry installed (in 1952) a 16" pipeline to discharge their waste liquors into the waters of Guemes channel at the foot of Main street in Anacortes. At that time the industry was also encouraged to construct holding tanks of sufficient capacity that the SWL could be retained for discharge at ebb tides only. The tanks or equivalent storage were not provided. The oyster men continue to complain that discharge of SWL throughout both tides allows some SWL to enter Fidalgo and Padilla Bays and thence cause a polluted condition over their oysters. They also state that discharge of the SWL into the eddying waters near shore in Guemes channel does not allow for sufficient rapid dilution and dispersal of the waste.

COMMISSION REQUIREMENTS (those pertinent to this hearing)
(from temporary waste discharge permit T-72)

No. 7. "Sulfite waste liquors are to be stored and discharged to Guemes channel only during outgoing tides in accordance with a plan to be approved by the Commission. This facility shall be in operation within three (3) months of the date of issue of this permit.

No. 8. "Within one year from the date of this permit, a firm proposal shall be made to the Commission indicating the method by which the B.O.D and solids characteristics of spent cooking liquors, including major washings, will be utilized, recovered or treated. This proposal shall indicate the time necessary to complete the project. During this year, quarterly reports shall be made to this Commission as to the progress of the preparation of this proposal."

APPENDIX D6
BILL'S RECORDING SERVICE

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NORTH PUGET SOUND SULPHITE LIQUOR AND PULP PRODUCTION

Year	Anacortes, tons		Bellingham, tons		Total Pulp, tons		Liquor, gal.
	Yearly	Daily	Yearly	Daily	Yearly	Daily	Per day
1926	8,355	23	1,230	3	9,585	26	62,400
1927	10,245	28	8,075	22	18,320	50	120,000
1928	14,240	39	16,561	45	30,801	84	201,600
1929	16,118	44	25,858	71	41,976	115	276,000
1930	16,167	44	26,576	73	42,763	117	280,800
1931	8,725	24	30,142	82	38,867	106	254,400
1932	NONE	0	28,528	78	28,528	78	187,200
1933	8,998	24	33,479	92	42,477	116	278,400
1934	22,377	61	32,899	90	55,276	151	362,400
1935	20,487	56	33,915	93	54,402	149	357,600
1936	25,730	70	37,298	102	63,028	172	412,800
1937	25,096	68	38,281	105	63,377	173	415,200
1938	NONE	0	47,682	131	47,682	131	314,400
1939	6,839	19	87,577	240	94,416	259	621,600
1940	27,297	75	100,839	276	128,136	351	842,400
1941	27,375	75	143,038	392	170,413	464	1,113,600
1942	22,630	62	153,546	421	176,176	482	1,156,800
1943	9,125	25	101,337	278	110,462	303	727,200
1944	22,630	62	98,986	271	121,616	333	799,200
1945	27,375	75	97,641	268	125,016	343	823,200
1946	27,375	75	84,257	231	111,632	306	734,400
1947	27,375	75	112,083	307	139,458	382	916,800
1948	27,375	75	128,370	352	155,745	427	1,024,800
1949	27,375	75	97,171	266	124,546	341	818,400
1950	29,200	80	129,498	355	158,698	435	1,044,000
1951	29,200	80	136,949	375	166,149	455	1,092,000
1952	29,200	80	137,084	376	166,284	456	1,094,200
1953	31,000	85	144,213	395	175,213	480	1,152,000
1954	31,000	85	152,875	419	183,875	504	1,209,600
1955	32,850	90	161,448	442	194,298	532	1,276,800
1956	32,850	90	161,760	443	194,610	533	1,279,200
1957	36,500	100	158,783	435	195,283	535	1,284,000
.st½- 1958	18,250	100	64,970	356	83,220	456	1,094,200

Daily production of pulp is computed as 1/365th of the yearly production. The maximum daily capacity is larger, 120 tons per day at Anacortes and 480 tons per day at Bellingham or 600 tons total.

Digester liquor is computed as 2,400 gallons per ton of pulp produced which is the figure used by the Washington Pollution Control Commission in its Report No. 12

The above production figures were given in a sworn statement by the manager of both pulp mills up until November 15, 1940 when the Scott Paper Company bought the Anacortes pulp mill. Since 1940, the production of the Bellingham pulp mill is taken from the annual reports of the Puget Sound Pulp & Timber Company. The Scott Paper Company refuses to release the production from the Anacortes pulp mill and the above figures are estimates of the Anacortes production since 1940. They should be accurate within 10% and the total production figures for both pulp and liquor should be accurate within 2%.

APPENDIX D7
BILL'S RECORDING SERVICE

Mr. Neale and his department spent 30 days evaluating and writing the report of their two month survey and another 30 days printing the 27 page report.

On February 4, 1958 the Pulp Industry was given a hearing relative to the Washington State Fisheries Department criteria for elimination of State-wide pollution. At his meeting proponents of this criteria were not permitted to be heard and the criteria was dropped by Mr. Coe after Mr. Moore under pressure tabled it for further study. Over 20,000 citizens interested enough to sign petitions recommending adoption of this criteria were ignored.

At this meeting the pulp mill spokesmen conveniently made no mention of the North Puget Sound oyster decline due to pulp mill pollution.

The problem of pulp mill pollution of Washington State waters was recognized as long ago as 1945 when the Pollution Control Commission law was enacted by the Legislature---empowering this commission with regulatory powers.

On February 16, 1948, a motion before the Pollution Control Commission was made and carried that if the Weyerhauser Timber Company's magnisium dioxide process at Longview proved successful the remaining pulp mills were to be "cited before the Commission and requested to remedy their respective problems". (Various excuses were given by the pulp industry as to why they could not do so.)

On February 2, 1950 a resolution was passed which involved the Crown Zellerback mill at Camas, the Weyerhauser Timber Company mill at Everett and the Soundview pulp mill at Everett and Rayonier, Inc. of Hoquiam which requested the use of either diffuser type outfalls or lagooning, and indicated that these were considered temporary methods of abating pollution.

On September 6, 1950 the motion of February 2 was amended where it concerned the Soundview (now Scott Paper Co.) and Weyerhaeuser mills at Everett. The amendment stipulated that the mills convert to the magnesium process or to the ammonia process (and burn) not later than December 31, 1953. It stated that the pipeline diffuser type outfall then being considered was only considered to be a temporary method of abatement. (THIS MOTION AND AMENDMENT ORDER HAVE NEVER BEEN FOLLOWED THROUGH).

On August 24, 1950, Mr. Howard Morgan of the Weyerhaueser Timber Company agreed that their mill at Everett would be converted to the magnesium process. (THIS CONVERSION HAS NOT BEEN ACCOMPLISHED TO THE PRESENT TIME).

On June 6, 1956, the Coos Bay Pulp Corporation at Anacortes, a subsidiary of the Scott Paper Company was issued a temporary permit with certain provisions.

PACIFIC COAST OYSTER GROWERS ASSOCIATION
CABLE ADDRESS: PCOGA SEATTLE

TRUSTEES
R. H. BAILEY, SEATTLE, WASH.
JOHN S. CHRISTOPHERSON, LADNER, B.C.
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LYNN V. HAYES, BAY CITY, OREGON
RICHARD C. HICKS, OLYMPIA, WASH.
DAVID C. MCMILLIN, SHELTON, WASH.
EARL P. MORGAN, ANACORTES, WASH.
ROBERT Y. NAKAO, SOUTH BEND, WASH.
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LEE J. WIEGARDT, OCEAN PARK, WASH.
HAROLD E. WIKSTEN, SEATTLE, WASH.
E. YAMASHITA, GIG HARBOR, WASH.

PRESIDENT
R. H. BAILEY
SEATTLE, WASH.

VICE-PRESIDENT
RICHARD C. HICKS
OLYMPIA, WASH.

SECRETARY-TREASURER
CHARLES R. POLLOCK
69 MARION ST.
SEATTLE 4, WASH.
MAIN 3-0102

January 15, 1962

Washington Pollution Control Commission
Assistant Secretary James M. Quigley of Health, Education and Welfare
Mr. Murray Stein, Chief Enforcement Officer
Mr. Leonard Dwarsky, Northwest Control Officer

Gentlemen:

This is an assembly of letters and statements in connection with the fight to force the modernization of our sulphite pulp mills to equal those of Alaska in this regard. The record shows that the pulp mills have expanded their production and the amount of pollution by an average of over 50% in the past 13 years since 1947. There has been no corresponding expansion of evaporation to even hold even.

When the new pulp mill(sulfite) was built at Cosmopolis, they installed the evaporators. Why then should not the Scott Paper pulp mill at Everett install evaporators when it increased production 250 tons daily since 1947 - the increase equals the production of a large new pulp mill.

Public opinion at Everett has forced the city to spend hundreds of thousands of dollars to eliminate the pollution of domestic sewage which is less than 1% of the total pollution load in the harbor. Why should the pulp mills fail to spend any money toward eliminating 99% of the pollution which they dump into Everett Harbor. Staement on that situation is attached.

APPENDIX 6
BILL'S RECORDING SERVICE

Very truly yours,
PACIFIC COAST OYSTER GROWERS ASSOCIATION

By R H Bailey
President

CITIZENS FOR CLEAN WATERS

clean waters for all with special privilege for none

LLOYD BUILDING • MA. 4-0996
SEATTLE 1, WASHINGTON

November 2, 1960

Dear Friend:

The present Pollution Control Commission on October 24th adopted, in the face of determined Pulp Mill opposition, regulations ordering polluting pulp mills to abate this problem.

This program can only be successful if diligently enforced in the future.

It is essential therefore that a strong and unswerving Pollution Control Commission be backed by firm Administrative Policy.

We believe that the interests of the State of Washington and ALL its citizens will be best served by retaining the present State Administrative policy.

Sincerely,

CITIZENS FOR CLEAN WATERS

Edward J. Gruble
President

R H Bailey
Managing
Director

APPENDIX E2
BILL'S RECORDING SERVICE

S. MAIMON SAMUELS
PRESIDENT

EDWARD J. GRUBLE
SECRETARY-TREASURER

R. H. BAILEY
MANAGING DIRECTOR

CITIZENS FOR CLEAN WATERS

clean waters for all with special privilege for none

LLOYD BUILDING MA. 4-0996
SEATTLE 1, WASHINGTON

Gentlemen:

Mr. Earl Coe, now Chairman of the Pollution Commission, said during the last campaign, in speaking of pulp mills:

"Industries located on the Sound and rivers running into it have done nothing for the past eight years to correct the situation except to push their disposal lines further into the waters they are polluting."

Was this just another campaign statement? No -- this was the absolute truth. In fact, aside from extending the pipe lines, the sulphite pulp mills have shortened their digester cooking time and increased their production 30% at Bellingham and 45% at Everett (55%)at Hoquiam). This without any increase in physical plant.

Sulphite liquor pollution increases in proportion to pulp production and is discharged into the inner bays of the Sound without treatment except that a minor amount (10%) is removed in the alcohol and by-product plants at Bellingham.

The former Pollution Commission ordered all mills to submit plans for evaporation of the liquor within one year from June 1956. The present Commission has extended this order once and have had their engineers make unbiased tests of adjacent waters. The results prove many times damaging pollution and other adversely affected industries now await enforcement of the Commission's orders.

Truly yours,

CITIZENS FOR CLEAN WATERS

KOMO-TV - 9:30 p.m., June 24, 1958
KIRO-TV - 5:30 p.m., June 28, 1958

R. H. Bailey

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APPENDIX 63
BILL'S RECORDING SERVICE

To: Washington Pollution Control Commission - Bellingham Meeting.

By R. H. Bailey

I would like to be talking to the people of Bellingham who, I fear, are too close to the picture to realize that they could and should have the pulp mill and also clean water.

Mr. Eden of the Superior Portland Cement Company brought me into this area in 1912 - before highways or many automobiles.

Bellingham was a picture with its sawmills, fish-traps and canneries. We had multiple-use of Bellingham Bay waters. The saw-mills burned most of their waste but some escaped into the bay. There was slight discoloration of water around the log booms. Some cannery offal went into the water and made food for the fish and crabs. Even domestic sewage after its initial oxygen demand is satisfied, becomes a fertilizer for plankton growth which feeds the small fish - which, in turn, are food for the big fish. That was multiple-use of the water.

The pulp mill was built in 1926 and had a capacity of 22 tons per day. Capacity doubled the next year and many times thereafter until it is now 20 times its original size. The pulp mill was a new breed of cat. It was like dropping a wild-cat kitten in a roomful of house-cats. The kitten has grown and grown until today we have no multiple use of water -- we have an absolute monopoly of its use by the pulp mill.

Pulp liquor is no ordinary pollutant such as results from saw-mills, canneries or domestic sewage. It is a highly toxic acid which has the following properties: it will attack and destroy iron, steel, copper, bronze, concrete and in fact about everything but stainless steel. Bronze propellers will last less than a year on boats operating near the pulp mill. It will discolor and remove paint and varnish on boats. It is far different than fish offal or domestic sewage. It is a vicious and powerful chemical.

What has the pulp mill done about it? They have spent $3,000,000.00 on by-product plants. The alcohol plant ferments the small percentage of wood sugars into grain alcohol. A still smaller percentage is evaporated for other by-products. They eliminate about 10% of their liquor. What else have they done? Doubled the capacity since building the alcohol plant -- Net result, 80% more pulp liquor.

They should have spent 25% or 30% of the money in piping most of their liquor out of the confined area of Bellingham Bay to Rosario Strait for dilution and dispersion in large volumes of water. The North Sound oyster industry is almost completely shut down. North Sound crab landings averaged over 1,000,000 per year for 1944 through 1951. They were down to 179,700 in 1957 and almost two-thirds of those came from the Blaine area.

The best canning season for oysters is the late Spring. That is the critical time and also when the prevailing winds switch from South to North. Technical Bulletin No. 22 shows a 500% increase in sulphite liquor readings in Samish Bay with a North wind instead of a South wind. Sulphite liquor tends to float on top of salt water and is readily carried in the direction the wind is blowing.

The Commission should put no reliance on monitoring conducted by the pulp mills. Samples have been taken by the pulp mill crew in the past from alongside a moving boat where the wake has thrown the sulphite liquor well away. No wonder they get little or no liquor in their samples. This Commission deserves great credit for having ordered the survey and publication of its findings on North Sound Pollution in Technical Bulletin No. 22. It must continue to do its own monitoring job and act on its findings.

APPENDIX E4
BILL'S RECORDING SERVICE

S. MAIMON SAMUELS
PRESIDENT

EDWARD J. GRUBLE
SECRETARY-TREASURER

R. H. BAILEY
MANAGING DIRECTOR

CITIZENS FOR CLEAN WATERS

clean waters for all with special privilege for none

LLOYD BUILDING MA. 4-0996
SEATTLE 1, WASHINGTON

POLLUTION QUESTIONNAIRE

August 28, 1958

In order to properly evaluate the candidates for election to the Washington Legislature, Citizens for Clean Waters respectfully ask that you forthrightly answer this questionnaire which also goes to all holdover members of the Washington State Senate.

1. Do you believe that pollution control must keep pace with our increased population and industrial expansion? Yes______ No_______
2. Do you favor comprehensive plans to catch up with sewage treatment construction to clear up our community beaches? Yes______ No______
3. Our largest new industries, the oil refineries, have eliminated almost 100% of their pollution at a cost of $10,000,000.00. Do you believe that our sulphite pulp mills should adopt known and reasonable methods of eliminating their pollution? Yes______ No______
4. Everett is a typical pulp-mill city. Home owners are now bonding themselves to spend $3,000,000.00 to eliminate the less than one percent of the Everett Harbor pollution which is due to domestic sewage. Do you believe that the pulp mills which contribute over 99 percent of the pollution should modernize as the Longview, Cosmopolis and Alaska pulp mills have done? Yes______ No______
5. The present pollution law provides for an ineffectual penalty of $100.00 per day for a pulp mill's failure to comply with the Pollution Commission's orders. Will you favor and vote for a realistic penalty of at least $3.00 per ton of pulp produced while in default of the Commission's orders? Yes______ No______
6. Do you believe that towns, cities, oil refineries, pulp mills and other industries should have equal treatment under Washington Pollution Laws? Yes______ No______
7. Do you believe that clean waters are a basic requirement if we are to maintain and expand our local fish runs, our clam, crab and oyster fisheries and our sports fishery which attracts much of our tourist trade? Yes______ No______

____
Signature

APPENDIX E5
BILL'S RECORDING SERVICE

SOURCES OF POLLUTION IN EVERETT HARBOR (PORT GARDNER BAY)

The following true facts are set forth to meet a typical piece of pulp mill propaganda which was given to staff writer Robert Browning by the Everett City Commissioners for a feature article in the Seattle Post Intelligencer of July 8, 1958. The very interesting article describes the new lagooning system (a 160 acre septic tank) for treatment of Everett's domestic sewage and ends with this very misleading statement:

"Everett's pulp mills and other industries have cleaned up (or are doing so), their contribution to the pollution of the Snohomish mouth and adjacent salt water, once the worst in the State. The (City) Commissioners say: It's certainly about time the city followed the example set by industry."

"Pollution - once the worst in the State" is described in great detail in the Washington Pollution Commission Progress Report No. 12 published August 1, 1947. This data compiled by the Commission's engineers was based on the research of a pulp mill scientist, Mr. William R. Barber of the Crown Zellerbach Corporation. Mr. Barber's studies proved that the oxygen demand of the sulphite liquor resulting from each ton of pulp produced, was equal to the domestic sewage of 3,200 people. (Page 2 of Report).

"Waste sulphite liquor discharged by the two sulphite pulp mills on the Everett waterfront accounted for 97 percent of all the wastes discharged into Port Gardner Bay." (Page 5 of Report).

Detailed data found on pages 18 and 22 of the Report:

Source	Pulp Mill Capacity	Pulp Pollution effect equals population of:	Percent
Soundview Pulp Co. (Sulphite) Now Scott Paper Company	550 Tons	1,700,000	67.0%
Weyerhaeuser Sulphite Mill	250 "	777,000	30.0%
Everett Pulp (Now Simpson Kraft)	75 "	45,000	1.7%
Everett Domestic Sewage		32,000	1.3%
Total Pollution Equal to Population of		2,554,000	100.0%

"How has Everett's pulp mill industry set an example by cleaning up?" Without any increase in physical plant, they have shortened their digester cooking time and increased production (and sulphite liquor) 45 percent. They have also extended their disposal lines 3,000 feet from shore into deep water as best stated by Mr. Earl Coe, now Chairman of the Pollution Commission, in speaking of pulp mills during the last campaign:

"Industries located on the Sound and rivers running into it have done nothing for the past eight years to correct the situation except to push their disposal lines further into the waters they are polluting."

Everett sulphite pulp mills have increased production 45 percent and continue to dump the raw acid. Everett Harbor pollution has become progressively worse for the past ten years since Progress Report No. 12 was published. Department of Fisheries biologists report serious fish kills as far away as Mukilteo five miles from the pulp mills. The present capacities and population equivalents of Everett pulp mills are as follows:

Source	Pulp Mill Capacity	Pulp Pollution effect equals population of:	Percent
Scott Paper Co. (Sulphite)	800 Tons	2,480,000	66.36%
Weyerheauser (Sulphite mill)	350 "	1,078,000	28.85%
Weyerhaeuser new Kraft mill	300 "	100,000	2.68%
Simpson Paper Co. Kraft	75 "	45,000	1.20%
Everett Domestic Sewage		34,000	.91%
Total Pollution Equal to Population of		3,737,000	100.00%

The Weyerhaeuser magnesium process was developed in this State 16 years ago. Mr. Howard Morgan of the Weyerhaeuser Pulp Division prophesied ten years ago that the magnesium process would solve the sulphite pollution problem. It has solved it at Longview and Cosmopolis in this State, Ketchikan and Sitka, in Alaska and in New England pulp mills. Why should this largest pulp producing State be denied this relief? Because the pulp mills find it cheaper to feed out the above type of propaganda, and do nothing.

CITIZENS FOR CLEAN WATERS

July 17, 1958

APPENDIX E6
BILL'S RECORDING SERVICE

R. H. Bailey, Managing Director

BE IT RESOLVED, That the following "Statement of Facts" approved by the annual meeting of the Pacific Coast Oyster Growers Association on pollution control of industrial wastes, be forwarded to:

The Honorable Albert D. Rosellini, Governor of the State of Washington

Mr. Harold E. Miller, Director of Pollution Control
Mr. Earl Coe, Director of Conservation and Development
Mr. John Biggs, Director of Fish and Game
Dr. Bernard Bucove, Director of Health
Mr. Joseph D. Dwyer, Director of Agriculture
Mr. Milo Moore, Director of Fisheries
Dr. H. Dewayne Kreager, Director of Commerce and Industry

Statement of Facts:

1. Serious pollution problems result from Oil Refinery and Pulp Mill operations due to the great volume of their chemicals.

2. The Oil Refineries have solved their pollution problem at a cost of ten million dollars. Phenol hungry bacteria eat the phenols in their wastes. Once a month a scowload of caustics is towed out for dumping 300 miles off-shore.

3. Over half of our pulp mills use the "sulphate" process whereby the digester liquor is evaporated and the chemicals are recovered for re-use. No complaints if the wash waters are piped out for dilution in large volumes of water.

4. A similar process of evaporating and recovery of chemicals was developed in 1942 for the "sulphite" pulp mills. It is known as the magnesium-oxide process and has been installed by the Weyerhaeuser Timber Company in their Longview and Cosmospolis sulphite pulp mills.

5. New England and Alaska pulp mills have installed the process. The Federal Government insists on the process being used for all Alaska pulp mills.

6. Other sulphite pulp mills in Washington have failed to install the magnesium process to eliminate their pollution. Instead, they have shortened the digester cooking time and increased pulp production (and sulphite liquor) 30% at Bellingham, 45% at Everett and 55% at Hoquiam.

7. Temporary Permits were issued over two years ago ordering the sulphite pulp mills to submit firm proposals within one year for reducing the sulphite liquor discharge by at least 85 percent.

8. At the end of the year (June, 1957), the pulp mills made no proposals but all asked for extensions of time and were granted another year with one pulp mill granted two years.

9. The sulphite pulp mills find it cheaper and easier to get extensions and continue to increase their pollution toward the destruction of our local fish runs, clams, crabs, oysters, sports fishing and thereby a considerable part of our tourist trade.

10. Public Opinion is almost solidly back of the State Administration in demanding abatement of sulphite liquor pollution. The State must now take a stand. There are only two choices:

    (a) Declare the adversely affected industries expendable and admit that the sulphite mills are a Special Privilege Group above the Law, or

    (b) Enforce the orders issued in the Temporary Permits as provided in Section 20 of the 1945 Pollution Act and bring the force of Public Opinion on the side of equal treatment for all under our laws.

Respectfully submitted,

Pacific Coast Oyster Growers Association,

Bob O. Rower, Chairman Pollution Committee

APPENDIX 67
BILL'S RECORDING SERVICE

BE IT RESOLVED, That the following "Progress Report" approved by the annual meeting of the Pacific Coast Oyster Growers Association on pollution control of sulphite pulp liquor, be forwarded to:

The Honorable Albert D. Rosellini, Governor of the State of Washington

Mr. Harold E. Miller, Director of Pollution Control
Mr. Earl Coe, Director of Conservation and Development
Mr. John Biggs, Director of Fish and Game
Dr. Bernard Bucove, Director of Health
Mr. Joseph D. Dwyer, Director of Agriculture
Mr. Milo Moore, Director of Fisheries
Dr. H. Dewayne Kreager, Director of Commerce and Industry

Progress Report:

1. During the past 18 months, the Pollution Control Commission's engineers have made their own surveys and tests for sulphite liquor pollution in Grays Harbor, North Sound, South Sound and Port Angeles Harbor.

2. The results prove sulphite liquor concentrations which sometimes exceed by many times the concentrations previously reported by pulp mill's tests of the water.

3. Report by C. E. Woelke, Department of Fisheries biologist, on February 4, 1957, found that "Sulphite waste liquor has a depressing effect on food organisms in concentrations as low as 2½ parts per million."

4. Mr. Woelke's Report of April 13, 1958, shows that low concentrations of 2 and 4 parts per million adversely affect oyster and clam larva. This same report shows that 18 parts per million kill all oyster larva and a large proportion of the clam larva.

5. Some concentrations of 18 parts per million have been found in Padilla Bay and many samples from Samish Bay have concentrations exceeding 18 parts per million as shown by the Pollution Commission's Technical Bulletin No. 22 on North Sound.

6. A large scale proof of damage from sulphite liquor was given by the shutdown of the Shelton pulp mill for lack of market, in June, 1957. Numerous water samples were taken before the shutdown and sampling is continuing by means of an automatic sampling device taking a sample every hour. There has been no other change in the environment except removal of sulphite liquor with these results:

   (a) The almost extinct Olympia Oyster Industry has been revived by the biggest seed catch in 30 years. The resulting oysters are thriving.

   (b) Pacific oysters in the area are growing twice as fast and fatten to the best condition of any oysters in the State; this in contrast to their watery and emaciated condition prior to the mill shutdown.

   (c) Fishermen advise that the herring are again spawning in the vicinity of Shelton for the first time in many years.

   (d) Oyster grower Lawrence Gosser reports, "Small shrimp are back; the first time I have seen them since I was a boy." That was 30 years ago. The pulp mill was built in 1927.

7. We congratulate Governor Rosellini on his appointment of Mr. Harold E. Miller as Director of Pollution Control. We believe Mr. Miller is qualified by education and experience and is absolutely honest. We are back of the Governor, Mr. Miller and the Pollution Commission wholeheartedly in their efforts to resolve this problem so all industry can live and expand.

Respectfully submitted,

Pacific Coast Oyster Growers Association,

Bob O. Bower, Chairman Pollution Committee

APPENDIX E8
BILL'S RECORDING SERVICE

RESOLUTION

WHEREAS, The Washington State Pollution Control Act requires the use of all known available and reasonable methods by industries and others to prevent and control the pollution of the waters of the State of Washington; and

WHEREAS, The Pollution Control Commission has adopted the policy that all sulfite pulp mills install recovery facilities by Sep't. 1963; and

WHEREAS, The Federal Water Pollution Control Advisory Board recommends,

1. The immediate expansion of industrial treatment facilities.
2. The adoption of the national credo that users of public waters have a responsibility for returning them as nearly clean as is technically possible, and

WHEREAS, nine sulfite pulp mills in this state have indicated by requesting hearings and through official statements their intention to evade these aforementioned policies and recommendations;&

WHEREAS, The Federal Water Pollution Control Advisory Board recommends the recognition by State Legislatures of their responsibilities in carrying out these aforementioned policies and recommendations.

BE IT THEREFORE RESOLVED by the PACIFIC COAST OYSTER GROWERS ASSOCIATION at it Annual Meeting in Seattle, Washington, this 25th day of August 1961, that:

The Governor and the Legislative Interim Committee on Water Resources be made aware of the aforementioned facts and requested to formulate for introdution to the 1963 Legislature Acts which will strengthen the Pollution Control Act to prevent the sulfite pulp mills responsible for 90% of all Washington State Pollution from continued evasion of their responsibilities to the people of the State of Washington.

March 4. 1959

Ways and Means Sub-Committee on Revenue and Taxation,
House of Representatives
Olympia, Washington

Attention: Hon. Paul P. Stocker, Chairman

Gentlemen:

Clean water means good industrial climate for our fisheries and allied industries which include sport fishing, boat houses and marine industries which cater to recreation and the tourist trade.

This is not a case of a choice between these industries and the pulp industry. It is simply a case of enforcing the same pollution laws against the sulphite pulp mills that have been enforced against every other industry in the State of Washington. Every little cannery, dairy and gravel plant has been forced to eliminate its comparatively harmless wastes. Our newest large industry, the oil refineries, have spent $10,000,000.00 to eliminate their pollution. They have done the most outstanding job of pollution control of any refineries in the nation. You can drink the water they return to the bay.

Our cities have spent and are continuing to spend millions of dollars to treat domestic sewage. These costs are assessed to every small property owner. Domestic sewage contributes only a small percentage of the oxygen demand which creates the pollution blocks in our streams and inner bays. In your home city of Everett, Mr. Chairman, your city commissioners are spending $3,000,000.00 on a treatment plant although less than 1% of the oxygen shortage in Everett Harbor is caused by domestic sewage. What have the pulp mills done? They have extended their disposal lines into deep water to hide from public view the more concentrated sulphite liquor solutions. Pulp liquor causes a high percentage of the serious oxygen shortages; 99% at Everett and Port Angeles Harbors; 96% at Bellingham; 94% at Hoquiam; (Report No. 12 of Pollution Control Commission) and 87% on the Columbia River. (U. S. Public Health Service).

Biologists report that a large percentage of fingerling salmon fail to survive the oxygen deficient pollution blocks on their way to the sea. Shell fish, oysters, clams and crabs suffer from the toxic effects of sulphite liquor. This is no ordinary pollutant. It is a vicious acid which will attack and destroy iron, steel, copper, bronze, concrete and in fact everything but the highest grade of stainless steel. The effect of even small concentrations of sulphite liquor on oysters has been proven on a large scale in the past two years by the shut-down of the Shelton pulp mill for lack of market in August of 1957. Before the shut-down the Olympia oyster had become almost extinct. Since the shut-down, these oysters are coming back into good production and the wholesale price has been slashed. Two years ago, the larger Pacific oysters in the Shelton area were dark, watery and almost unmarketable. The water was full of slime. Today the slime has disappeared and those oysters are in prime condition.

The lead article in the January 17th, 1959 Wall Street Journal is headlined: "The Pollution Problem Grows, Bringing Public Clamor for Stiffer Laws" "Top Trouble Spot: The South". They are passing new pollution laws and enforcing old ones. Washington is not mentioned. The pulp mills threaten to move to the South. Mr. Howard Morgan, President of the Pulp and Paper Association, made the statement last week that when the Shelton Pulp mill shut down that the payroll went to the South. Mr. Morgan knows that when Rayonier's Shelton mill went down that two of Rayonier's pulp mills in the South also shut down. If there was a payroll movement, it was North instead of South.

Pulp mills are not located in Washington because they love us or because of our good industrial climate. They are here because we have the timber. All of our industry, with the exception of Boeing, is located here because of natural advantages and basic natural resources. Our fisheries and allied industries have that same firm foundation. We should protect them instead of wistfully looking for another miracle like Boeing.

APPENDIX E10
BILL'S RECORDING SERVICE

The Northwest Pulp and Paper Association has published a very complete Economic Survey of Washington pulp mill operations. Pulp and paper capital investments in Washington are almost Five hundred million dollars. A very large percentage of this investment is in timber which is ample to produce wood chips on a sustained yield basis. This timber is not subject to removal from our state.

Value of products shipped in 1938	$ 438,888,000.00
All costs of payrolls, wood chips, State and local taxes, freight, materials and utilities	326,750,000.00
Gross profit for payment of depreciation, income-tax and dividends..	$ 112,138,000.00

Our pulp mills are a "Special Privilege Group" when it comes to depreciation as recorded on page 7141 of the May 29th, 1957 Congressional Record which shows that they had $38,587,000.00 in fast tax write-offs for the seven years of 1950 to 1957, as follows:

Weyerhaeuser Timber Company	Everett	$ 13,287,000.00
" " "	Longview	8,955,000.00
Scott Paper Company	Everett	10,896,000.00
Pacific Coast Paper Mills	Bellingham	264,000.00
Rayonier, Inc.	Port Angeles	568,000.00
"	Shelton	918,000.00
"	Hoquiam	515,000.00
Crown Zellerbach	Camas	643,000.00
West Coast News Print	Steilacoom	2,148,000.00
	Total..............................$	38,587,000.00

They report all State and local taxes total......................$		7,890,000.00
State Employment Security taxes total	$ 2,194,000.00	
State Business and Occupation tax....	1,755,000.00	3,949,000.00
Local taxes on $438,888,000.00..................................$		3,941,000.00

Local taxes are therefore less than 1% of the true value of the pulp mill properties.

House Bill 731 would produce between five and six million dollars per annum up until the sulphite pulp mills have installed evaporators similar to the process used by the Weyerhaeuser pulp mills at Longview and Cosmopolis. All sulphite pulp mills in the State were ordered to install evaporators within one year from June, 1956. The sulphite pulp mills except, three with evaporators, are now all in default of the temporary permit orders. The passage of House Bill 731 would assure the carrying out of the permit orders and the elimination of the pollution problem which has restricted other industry.

This bill would bring back a million dollar annual payroll in North Sound on oysters and crabs. The benefit to other marine industries would be ten million dollars annually.

Respectfully submitted,

R H Bailey

R. H. Bailey,
Pollution Committee
PACIFIC COAST OYSTER GROWERS ASSOCIATION

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BILL'S RECORDING SERVICE

43rd

PROGRESS REPORT

WASHINGTON POLLUTION CONTROL COMMISSION

204<

THE PULP INDUSTRY AND POLLUTION CONTROL

During the period covered by this report, the pollution control programs of the pulp and paper industry have continued at an accelerated pace. Numerous physical corrections have been accomplished and significant advancements are being made to solve the technical problems involved in treating and the utilization of pulping wastes. Reference is made to a number of these projects in the summaries of individual mill reports which follow.

The following items pertain to the pollution control accomplishments at various Washington pulp mills during the year of 1957. These projects may be generally classified as follows:

1) Watercourse management including effluent and watercourse analysis and controlled discharge.
2) Reduction of screening reject fibers and chemical losses.
3) Provisions for treatment of sanitary wastes.
4) Research involving treatment or recovery of cooking liquor solids.
5) Total cost of projects.

***

Coos Bay Pulp Corporation, Anacortes

Waste waters of this plant and also the receiving watercourse areas are being sampled and analyzed at routine intervals and the results are continually being made available to the Pollution Commission.

Provisions have been made to either reuse white water or to achieve additional fiber recoveries so that significant reductions have been made in the losses of these materials.

At this installation 60% of the sanitary wastes are being treated. It is expected that the sanitation projects will be completed prior to the end of the present year.

Total cost of the projects outlined herein, $30,500.

Crown Zellerbach Corp., Camas

A very effective program of measuring, sampling and analyzing of waste process waters is in use at this plant. Samples are collected continuously and analyses are completed daily. The program is so well integrated that corrections of abnormal conditions can be made almost immediately in any section of the plant.

The results of effluent sampling as well as the results of water quality survey of the Columbia river are tabulated and are reported to the Pollution Control Commission.

Additional equipment has been ordered so as to reduce the losses of paper machine fibers. Changes are also being made in the wood room screening system so as to reduce the losses of wood particles from this operation.

The Kraft mill chemical recovery system has been enlarged and modernized. Very effective reductions in the losses of cooking chemicals has been achieved. Chemical losses as salt cake have been reduced by 45% and as lime by nearly 300%. The B.O.D. of the Kraft mill sewers has been reduced by over 50%.

Research projects concerning programs to reduce or eliminate slime-fungus growths in the Columbia river have been very active and significant progress has been made.

Total costs of these projects are more than $3,926,900.

Crown Zellerbach Corp., Port Angeles

A watercourse survey program has been carried on at this plant, and resultant data has been made available to the Commission.

Significant changes have been made to provide for the removal of waste material from the receiving waters. The changes involve both floating material and finely suspended solid materials which result from operations of the Sulfite, Groundwood and Wood mills.

Cost of these projects has totaled $146,000.

Fiberboard Paper Products Corp., Port Angeles

Waste processing waters from this plant are being regularly sampled with regard to chemical and fiber losses and information collected is available to the Commission. The receiving watercourse is being surveyed to determine the flow both inside and outside the harbor, plus providing other chemical determinations.

Construction is continuing on an effective system of measuring, sampling

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BILL'S RECORDING SERVICE

and analyzing waste process waters. Also, installation is proceeding on a waste collection system which will result in a single point of discharge.

Provisions have been or are being made to reuse some of the white water and effectively reduce fiber losses to a minimum. The recovered fibers and rejects will either be processed to product or disposed of other than to the State waterway.

Cost of these projects has totaled $84,000.

Inland Empire Paper Company, Millwood

The program of effluent measuring, sampling and analyzing carried on at this mill has been expanded nearly 100%.

Fiber losses from the pulp mill have been reduced approximately 3 percent by provisions for re-use of the white water.

At this plant, sanitary sewage previously discharged to the Spokane river is now being treated.

Incidental to the water pollution control equipment, but none-the-less interesting, was the installation of a 62,000 cinder collector for the reduction of air pollution. Also, this industry has taken an active part in improving the aesthetic values of the waterway to the community.

Puget Sound Pulp and Timber Co., Bellingham

An extensive system of measuring, sampling and analyzing waste process waters from this mill is in operation. Samples are taken continuously and are analyzed daily. In addition, the receiving watercourse is monitored to a distance of 12 miles from the mill. Data collected is made available to the Commission.

Re-use of white water has reduced solids losses by 20 percent from the bleach plant and screen room. Other water re-use now being engineered will further reduce losses from the pulp machines.

Operation of the alcohol plant and other by-product recovery provisions has resulted in considerably reducing chemical losses to the waterways.

Sanitary wastes are now being treated by recently installed septic tanks.

Research activities for by-products recovery which can further reduce chemical losses has been expanded and enlarged, and is continuing at an accelerated tempo.

Total cost of projects summarized here has been approximately $550,000.

Rayonier, Inc., Grays Harbor Division, Hoquiam

At this pulp mill, equipment has been installed for metering and controlling the release of effluent from the impounding basin on Rennie Island. A new submerged outfall was installed from this basin. Five sewers from other parts of the mill have been combined to one submerged outfall now discharging to the main river channel. Other new sampling equipment has also been put into operation.

Equipment has been installed which reduces fiber losses from the pulp mill and the new wood mill. Provisions are being made for additional solids recovery equipment from the paper mill, bringing fiber and other solids losses even further below limits specified by the Commission.

Changes were made in the drains carrying sanitary sewage to permit the discharge of this waste to the municipal system when that system is in operation.

Extensive research is being carried on investigating the soda base sulfite pulping process, which would include chemical recovery and spent liquor burning. A final decision on the practicability of converting the mill to this process will perhaps be made during 1958.

Total expenditures for projects outlined in this summary are in excess of $300,000.

Rayonier, Inc., Port Angeles

This installation has pursued a program of watercourse sampling and float studies to increase their knowledge of currents and water quality conditions in their region. Also, effluent measuring, sampling and analysis has been conducted daily. This information is tabulated and made available to the Pollution Control Commission.

Re-use of the white water in the blow pit system has reduced fiber losses to the receiving watercourse and further reduction will be effected as a more efficient fiber recovery system is put into operation. Filters and other equipment installed has reduced fiber content of the mill effluent even further. Provisions have also been made to remove a greater amount of sulphur dioxide (SO_2) from the waste process waters. Further provisions have resulted in the virtual elimination of foam in the harbor area adjacent to this mill area.

Costs of these projects has totaled in excess of $175,000.

Rayonier, Inc., Shelton

A program of measuring, sampling and analyzing of waste process waters is employed at this mill. An installation has been completed to combine the mill effluents and discharge them over a weir. Metering and sampling equipment at this point assures accurate measurement of wastes discharged from the entire mill.

Collection of screen rejects and tailings has been followed, with the material disposed of on land. Sulfite waste liquor resulting from mill operations has either evaporated and burned or reused in the pulping process.

Watercourse monitoring programs have been carried out in conjunction with mill effluent sampling and analysis. This information is tabulated and made available to the Commission.

Sanitary wastes from the mill are now isolated from the mill sewers, collected and pumped to the city sewage treatment plant.

This mill has established a Marine Laboratory on Hood Canal to carry on a research project study of the chemical, biological and oceanographic factors affecting marine life.

Besides the operation of the effluent disposal plant costs which have been in excess of $58,000 per month, or approximately $406,000 for 1957, costs of the projects summarized herein are approximately $95,000.

Scott Paper Co., Everett

At this mill a measuring, sampling and analyzing project has been put into operations which insures the continuous operation of all recovery elements and provides a basis for measuring improvement. Receiving waterways are checked periodically. Data collected from these operations is available to the Pollution Control Commission.

A combination of installations, including the re-use of approximately 40 percent of the paper mill effluent has reduced the fiber losses to the receiving water. A drum barker was installed to handle some woods, reducing the use of the hydraulic barker. In one portion of the mill fiber loss to the sewers has been reduced by more than 60 percent. In the paper mill a change of piping has resulted in the reduction of dumping of white waters, and additional stock and steam lines are being installed to avoid spills of stock to the sewers.

This mill conducts a vigorous research project, delving into investigations of recovery methods for sulfite waste liquor. Their research has resulted in a patent application for an ammonia recovery process and a pilot plant is being installed to attempt to find ways to make the process economically feasible.

Total cost of the projects outlined is in excess of $1,213,100.

Weyerhaeuser Timber Co., Pulp Division, Everett

At this installation, provisions have been made for automatic measuring and sampling of all sewers. A monitoring program of the receiving water has been carried on regularly.

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Total fiber and solids losses by this mill have been effectively reduced by re-use of white water and the installation of additional fiber recovery screens. Other solids reduction is accomplished by more effective screening in the barking plant. Neutralization of the effluent has been affected by installation and enlargement of equipment to combine **alkaline effluent with acid** discharge.

This mill has accomplished considerable progress in the conservation of water resources by re-using water in many places within the mill, thus reducing over-all total water usage.

An educational program for the mill personnel has been instituted to make employees aware of the pollution influences of waste of fibers or chemical materials.

These projects cost a total of approximately $131,076.

Weyerhaeuser Timber Co., Pulp Division, Longview

An ambitious program to improve the recovery system has been installed at this mill. The sulfite recovery system was enlarged and improved and more effective recovery of chemicals was achieved. Additional Kraft recovery equipment has been installed, further reducing losses of chemicals and solids to the waterways. Other plant improvements for chemical preparation reduced losses in the over-all recovery program.

Provisions were made for improved fiber and solids removal from the effluent, lessening the losses to the waterway.

This mill has installed effective equipment for the measuring and sampling of process waste waters and analysis of the effluent is made on a regular basis.

A sanitary sewage treatment plant has been installed on the plant site, to handle sewage from the lumber division. Collection equipment is being installed to include the pulp division wastes in this program.

Projects outlined herein represent a total cost of approximately $4,059,000.

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Weyerhaeuser Timber Co., Pulp Division, Cosmopolis

This new mill maintains a very effective program of measuring, sampling and analyzing of waste process waters in use at this plant. Sampling is done continuously and analyses are completed daily. Extensive water quality surveys of the Chehalis river and Grays harbor have been conducted during the summer and during periods of low flow.

Provisions have been made at this installation to remove from the effluent a large percent of the solids and fibers. The recovery processes installed at this plant allow for a large percent of the cooking chemicals to be recovered. Suitable retention ponds were constructed to receive the discharge of process waters.

Provisions have been made for the treatment of sanitary sewage by the municipal plant when the latter is completed.

Waste disposal facilities installed at this mill cost in excess of \$7¼ million.

Crown Zellerbach, Port Townsend

This Kraft mill installation has an effective program of measuring, sampling and analyzing process waters on an eight-hour basis. Provisions are made to monitor chemical losses in the main sewers, and equipment is installed which reduces foaming conditions in the receiving waters.

New equipment installed and additions to major plant equipment has resulted in the reduction of fibers, and dissolved waste solids losses to the receiving watercourse. Other equipment increases the efficiency of the cooking liquor recovery system and reduces chemical losses.

Sanitary wastes from this mill are treated by the installation of septic tanks.

Costs of projects outlined in this summary total approximately \$561,000.

Longview Fiber Co., Longview

An effective program of effluent monitoring has been instituted by this plant.

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A full-time employee known as mill effluent control supervisor has the responsibility of keeping fiber and chemical losses to a minimum. The water management program put into use here has reduced total effluent volume by 10 percent although production has increased by 20 percent.

Additional equipment installed further reduces fiber losses to the receiving watercourse. Chemical losses have been reduced by installation of new evaporators and the installation of the world's largest recovery furnace.

Sanitary wastes from this mill are being treated by a new sewage treatment plant on the mill site.

Efforts are continuously being made to further improve water management and effluent quality.

Total cost of projects outlined herein are approximately $4,000,000.

St. Regis Paper Co., Tacoma

A program of effluent monitoring and research at this mill has resulted in considerable data regarding effluent and receiving water quality. A revision of discharge sewers to allow discharge to the log pond of nearly all waste process waters has resulted in good dispersion and visual improvement.

New equipment such as washers, screens, evaporators and oxidation tower have resulted in a reduction of chemical losses to the effluent. Fiber losses have been reduced by total revision of processes for handling knots and screenings.

Sanitary wastes from this mill are treated by six septic tanks.

Costs for improvements to their effluent and the receiving waters have totaled approximately a million dollars.

Simpson Paper Co., Everett

A program of measuring, sampling and analyzing mill wastes has been carried on at this mill on a regular basis.

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Additional equipment installed, plus revision and improvement of existing equipment has resulted in a substantial reduction of fiber and chemical losses to the mill effluent.

Research and investigations have been carried on to determine the effects of this mill's wastes upon the receiving watercourse and also to attempt to devise methods of further improving the quality of the effluent discharged to the State waterways.

Total costs of the projects outlined herein is approximately $128,000.

Columbia River Paper Mills, Vancouver

This mill has installed substantial improvements in its measuring, sampling and analyzing equipment so as to keep constant check on their process waste waters. The plant has conducted extensive watercourse investigations on the Columbia river, seeking additional data regarding the formation and growth of slime-fungus.

Installation of fiber recovery equipment has resulted in a reduction of fiber loss by more than 50 percent, and intensive control of effective operation is maintained.

A newly completed sanitary sewer system has been constructed and connected with the Vancouver sanitary sewer system.

Total cost of the projects outlined herein is approximately $90,000.

THE PULP INDUSTRY

Improvements and additions which involve the control of pollution by pulp and paper mills in Washington as noted in the foregoing summary total approximately $24 million.

Of that amount approximately 25% yields direct pollution control benefits from the installation of fiber recovery equipment, sanitary sewage facilities, etc. The remainder, approximately 75%, involved expenditures for additional projects such as heat and chemical recovery equipment, etc. These projects yield secondary pollution-abatement benefits.

An important program of measuring, monitoring, sampling and analyzing mill process waste waters and receiving watercourses has been carried on throughout the industry. This data is of extreme importance to the Pollution Control Commission and the progress made in this program is evident from the greater effort expended during 1957 than in 1956.

The efforts and costs for monitoring discharges, wastes and receiving waters, according to reports by the Northwest Pulp and Paper Association, were as follows:

	1956	1957
Personnel (number in man-years)	22.8	34.5
Receiving water samples (number)	8339	13,208
Mill sewer samples (number)	71,731	85,158
Annual cost of above	$163,188	$241,684

*

As part of the above program, the industry has also been concerning itself with conditions of fish and other aquatic life. Two 2-day seminars on the biological aspects of water quality have been held. As part of these seminars the industries used the services of two Internationally famous biologists. They are Willis M. Van Horn, Chief Biologist of the Institute of Paper Chemistry, Appleton, Wisconsin, and Dr. Ruth Patrick, Curator of Limnology at the Academy of Natural Sciences of Philadelphia.

Further, the pulp and paper industry has conducted bio-assays to determine the effects of its wastes on fish and aquatic life at waste concentrations experienced in receiving waters. Some of this work has been conducted in cooperation with the State Department of Fisheries and Game, and the Pollution Control Commission.

***

POLLUTION AFFECTS YOU!

AFTER 13 YEARS THE MAJORITY OF THE STATE'S POLLUTION HAS BEEN CORRECTED, NOW IS THE CHANCE TO CORRECT THE "MINORITY" THAT THREATEN THE FISHING AND WATER RECREATION AREAS WHICH WE ALL ENJOY!

IT IS THE DUTY OF EVERY SPORTS LOVING PERSON IN THE NORTHWEST AREA TO HELP PRESERVE THE WATER WONDERLAND THAT THE NORTHWEST SO PROUDLY BOASTS!

Official Petition—Initiative No. 203

WOOD PULP WASTE TAX

AN ACT imposing a tax on the discharge into state waters of liquid waste from any wood pulp production process by which wood is subjected to chemicals or solvents; creating certain exemptions; requiring reports to the state tax commission; and fixing the duties of state agencies in the operation of the act.

BE IT ENACTED BY THE PEOPLE OF THE STATE OF WASHINGTON:

Section 1. The State of Washington hereby recognizes the necessity of permitting the discharge into the waters of the state of some quantities of waste from the manufacture of wood pulp, notwithstanding that the same may be injurious to the fisheries resources of the state and require supervision and control. Such discharges into the waters cause expense to the state in the cost of rehabilitation of the fisheries resources and the additional supervision made necessary thereby, and through loss of possible revenue sources through adverse effects upon both food and game fishing activities in the state's waters. This measure is enacted to minimize harmful discharges of digester liquor and to produce revenue to partially compensate the state for its losses resulting from such discharges. This act shall be liberally construed for the purpose of carrying out the object mentioned in this section.

Sec. 2. Wherever used in this act, the term "digester liquor" shall mean any liquid waste from any process by which wood is subjected to chemicals or solvents in the production of wood pulp, whether or not such waste shall be further processed or treated before discharge.

Sec. 3. There is hereby imposed an excise tax upon the privilege of discharging digester liquor into the waters of the State of Washington, which tax shall be due from any person causing such discharge into said waters and shall be at the rate of two dollars and fifty cents for each one thousand gallons or fraction thereof of digester liquor discharged into said waters. All provisions of Chapter 82.32 R.C.W. shall apply to the tax mentioned in this section except as modified by the terms of this act.

Sec. 4. There shall be exempt from the tax imposed by this act every person who, in the production of wood pulp, discharges into the waters of the state not to exceed twenty percent of the total digester liquor from the process of such production. In the computation of said tax there shall be omitted all quantities of digester liquor discharged according to the conditions set out in section 5 of this act in the following large scale dilution sites: the Straits of Juan de Fuca, Rosario Strait, westerly of Fidalgo or Lummi Islands, Admiralty Inlet northerly of Bush Point, the Pacific Ocean.

Sec. 5. Quantities of digester liquors discharged into large scale dilution sites as prescribed in section 4 hereof, shall be omitted in computing the tax only if the conditions prescribed in this section shall be complied with:

a. In case any producer of wood pulp shall convey digester liquor to prescribed large scale dilution sites by pipes, such liquor shall first be conveyed to a storage reservoir near the point of final discharge, which reservoir shall have a capacity to hold and store the digester liquor for up to five days during any period of neap tides so that said liquor shall be discharged on tides of extreme range which produce tidal velocities sufficient to diffuse and disperse the digester liquor into large volumes of water completely out of the area of discharge. Final discharge shall be made through a pipeline extending into a channel of active tides through a diffuser line at a depth of not less than seventy five feet below mean lower low water. The Washington Pollution Control Commission shall prescribe rules to establish the times when such discharges may be released in compliance with this paragraph and shall determine whether the conditions prescribed in this paragraph are complied with.

b. In case a producer of wood pulp shall elect to convey digester liquor by barge or other conveyance for discharge into large scale dilution sites, such discharge shall be made at such points and at such stages of the tide as the Washington Pollution Control Commission shall determine shall be necessary to insure the diffusion through tidal action.

The Washington State Tax Commission shall accept the determinations of the Washington Pollution Control Commission as to compliance with this section.

Sec. 6. Each person subject to the tax provided for in this act shall file with the State Tax Commission a quarterly report in such form and due at such time as the State Tax Commission shall prescribe, certifying the type and amount of digester liquor used in his manufacturing process and the amount and type thereof discharged into the waters of the State of Washington, and such other information as the State Tax Commission shall find is necessary to determine and verify the amount of tax due. Said tax shall be due and payable at the time that said report is filed. Every manufacturer of wood pulp by any process within the state shall make available to the Washington State Tax Commission all books and records which shall pertain to quantities of digester liquor which shall be involved in the manufacturing process or discharged into the waters of the state, and it shall be the duty of every manufacturer of wood pulp to measure such quantities and to maintain complete and accurate records thereof.

Sec. 7. For the purpose of this act the total production of digester liquor shall be computed as one hundred twelve and one half percent of the solvent liquid added to the wood chips in charging the digester. The reduction of the discharge of digester liquor to twenty percent or less shall be computed by ascertaining that eighty percent or more of the digester liquor is evaporated or otherwise eliminated from the discharge into the waters of the state. The Washington Pollution Control Commission is authorized to make any determination of fact that may be required by this section.

Sec. 8. Neither the payment of the privilege tax imposed hereunder nor compliance with the conditions for exemption set out herein shall affect the possible civil liability of manufacturers of wood pulp to persons who may be damaged by the discharge of digester liquor into the waters of the state, nor shall compliance with this act be deemed justification for the continuance of any nuisance that may be created thereby, or prevent the State Department of Fisheries, or the State Game Department, the Washington Pollution Control Commission or any other public agency from taking appropriate action to alleviate any condition which may be created thereby which would cause undue damage to marine life or public or private property.

Sec. 9. If any portion of this act shall be held to be invalid for any reason, such holding shall not invalidate the remaining portions hereof.

IMPORTANT!

Please clip out the attached OFFICIAL PETITION form for Initiative 203 and sign, along with as many of your friends as possible and return as soon as possible to:

CITIZENS FOR CLEAN WATERS

407 LLOYD BUILDING • SEATTLE 1, WASH.

Reprinted from

Bainbridge Review

THURSDAY, APRIL 3, 1958

Want To Join Us?

UNTIL SUCH TIME AS ORGANIZED Big Business changes its arrogant attitude and offers something better, The Review here with is an active supporter of a proposed people's law for a pollution-free Puget Sound, Initiative 203.

For years certain pulp producers and state officials have been wrangling over the discharge of chemically-potent solutions, used in the manufacture of pulp, into Sound waters. The evidence is strong that the liquor discharge is killing crabs, oysters and fingerling salmon, thereby threatening the Sound with becoming a "marine desert." The state attempting to enforce pollution controls has met with fine cooperation from about two-thirds of the pulp producers. The other third, however, refuse to adopt a process developed by Weyerhaeuser engineers for evaporating the bulk of the liquor. Recently, a state effort at pollution control was met by an angry and arrogant statement by a spokesman of the Association of Washington Industries. The spokesman apparently felt that the only payrolls worth considering were pulp payrolls; he ignored the fishing industry payrolls as well as the interest of hundreds of thousands of sports fishermen and beachcombing families whose members like to dig for shellfish.

Initiative 203 takes a different approach. It offers the stubborn pulp producer three alternatives: (1) dump poisonous liquor if you will, but reimburse the state for the damage you've done at the rate of $2.50 for every 1,000 gallons you dump so that there will be state money available for marine rehabilitation, or (2) dump only 20 per cent of the liquor by using the Weyerhaeuser process or equivalent and thus avoid payment of the excise tax, or (3) take your poisonous liquor to large dispersal areas, like the Straits of Juan de Fuca where a minimum of harm can be done by it.

The Review thinks Initiative 203 provides a reasonable approach. We, therefore, are for it. We will remain for it until Big Business has a better plan to offer to protect Puget Sound marine life.

Because we believe in activating what we say, The Review hereby announces that a petition to place Initiative 203 on next fall's ballot will be available on our office counter. Those who feel as we do cordially are invited to come in and sign the petition.

Reprinted from

The Seattle Times Tuesday, December 31, 1957

RESEARCHERS: Seeking better methods for utilization and disposal of pulp-mill wastes, two University of Washington scientists, Vincent F. Felicetta, left, and Joseph L. McCarthy, conducted a laboratory experiment.

Progress on Pulp Problems Reported by U. W. Scientists

Thirteen years of research on two major pulp-industry problems—air-borne odor and water pollution—are beginning to get results on a laboratory scale.

This is the gist of a report just made by two University of Washington scientists, Prof. Joseph L. McCarthy and V. F. Felicetta, research assistant, to Washington and Oregon pulp and paper firms, which to date have provided $500,000 for the studies.

The two problems provide sharp contrasts.

The pulp-mill smell, McCarthy and Felicetta note, is so pervasive that the human nose can detect one or two parts of the odoriferous gases in 1,000,000,000 parts of air. It is difficult to get accurate measurements with the most delicate scientific appliances.

The problem of pulp-mill wastes, conversely, is one of dealing with monumental masses of material. More than 1,000,000,000 pounds of lignin sulfonates and 300,000,000 pounds of wood sugars are produced by the sulfite mills. These components, which might be devoted to use, are not merely lost. They absorb free oxygen from the water into which they are discharged, which is bad for fish life.

Laboratory methods have been devised for collecting, identifying and processing the odoriferous gases, the scientists say. Now they are investigating equipment designs that may be expected to absorb the smelly substances before they are emitted from mill stacks.

The problem of dealing with the waste sulfite liquor is a more difficult one. The solids must be separated from ten times their weight in water. There is still more trouble in separating the various types of solids.

Some of the lignin compounds can be used as adhesives and emulsifying agents. The wood sugars could be processed to produce ethyl alcohol and animal feed. But high costs discourage such steps, the researchers say.

McCarthy and Felicetta now are studying heat and chemical recovery systems, including a magnesium system now in use by two Weyerhaeuser mills in this state and the Ketchikan Pulp Co. in Alaska and a sodium system in use in Sweden and Finland.

The scientists say different disposal plans may be advisable to suit varying mill conditions. In some cases, piping the sulfite liquor to large scale dilution sites may be necessary, pending further research.

INITIATIVE 203 carries out exactly the above recommendations and designates the "large scale dilution sites" to which the liquor can be discharged.

Reprinted from

THE OREGONIAN, FRIDAY, APRIL 11, 1958

Cleanup in Washington

Thanks to the foresight of conservation groups, the State of Oregon got an early start toward solving its problems of water pollution. Its State Sanitary Authority is an effective and respected agency, and municipalities and industries here realize they cannot continue to dump wastes into public waterways.

The State of Washington also has an anti-pollution agency, but not all Washingtonians are satisfied with its work. So much pulp mill waste is dumped into Puget Sound that it has been called a "marine desert." Crabs and clams have disappeared from some areas. The highly prized Olympia oysters are becoming scarce. It is feared that fingerling salmon en route to the ocean are dying in the Sound because pulp mill liquor has robbed the water of dissolved oxygen.

Now a Washington group calling itself "Citizens for Clean Waters" is sponsoring an initiative measure seeking to place a stiff tax on pulp mills which fail to find other means of disposing of their wastes. Pointing out that a new Weyerhaeuser pulp mill at Cosmopolis evaporates 90 per cent of its liquor, the "Citizens" believe others can either follow suit, or pipe their wastes into offshore disposal areas. Mills which dump no more than 20 per cent of their wastes will be exempted from the tax.

Petitions for Initiative No. 203 now are being distributed in Washington. Whether the measure will get on the ballot, and whether it will be approved by the voters if it does, remain to be seen. Some seemingly discriminatory features of the proposal could come under legal attack from the affected mills, even if the bill becomes law. So the "Citizens" may face a long period of delays and frustration.

Their efforts, however, will not be in vain. Water pollution can only be ended when the force of public opinion matches the power of those who profit by dumping their waste, rather than by going to the expense of disposing of it in other ways. Anything which helps arouse public opinion helps speed the day when all our waterways will become clean.

Oh! Oh! No Fenders!

Reprinted from

American Bulletin—Anacortes, April 8, 1958

WORKMAN BEGIN APPLYING PULP LIQUOR TODAY

First application of waste pulp mill liquor to city streets was made today on R Avenue.

Work will continue until all gravel arterials have been treated, City Clerk Frank Kinney announced today.

He warned residents that the highly concentrated spent sulphite liquor is extremely corrosive, and unless absolutely necessary drivers should avoid using the treated roads until the solution is dry.

He pointed out that once the solution has become a part of the road surface it will be safe.

The city council at last Tuesday's meeting okayed plans to purchase the waste liquor from Coos Bay Pulp Corp. for use as road binding material.

The firm is being paid one-half cent a gallon for the solution.

Every day — 6,500,000 gallons of this "highly corrosive" liquor is dumped into our inner bays and rivers.

(OVER)

STOP POLLUTION NOW!

WE MUST STOP THE DUMPING OF 6,500,000 GALLONS OF PULP LIQUOR INTO OUR INNER BAYS AND RIVERS IMMEDIATELY
TO PROTECT THE FISHING AND SHELLFISH POPULATION AND TOURIST FACILITIES OF OUR NORTHWEST WATERS!

WE NEED YOUR HELP:

1. This is a PEOPLE'S FIGHT to STOP PULP MILL POLLUTION.
2. Two-thirds of the pulp mills already comply with the terms of Initiative 203 except for minor details.
3. The other third have ignored and evaded orders of the Pollution Commission for the past several years.
4. They maintain high-powered lobbies and propaganda mills in the name of "Public Relations".
5. They continue to daily discharge 6,500,000 gallons of highly corrosive acid (enough to fill a trainload of 80 tank cars).
6. Seven pulp mills account for more pollution than do all of the hundreds of other industries in our State.
7. Their "Political Influence" is such that our only assurance of action is by this INITIATIVE TO THE PEOPLE.
8. Pollution laws are rigidly enforced against other industry. Home-owners must pay for the cost of their treatment plants.
9. Initiative 203 will compel the "Do-Nothing" pulp mills to pipe out or otherwise dispose of 80% of their liquor.
10. It will clean up our inner bays and rivers, bring back our Fisheries and promote recreation and tourist trade.
11. Average pulp mill profits for 80 days will pay the initial cost of barging or piping out. That will shut down no pulp mill.

JOIN THIS CRUSADE FOR CLEAN WATERS:

Many individuals have mailed in over 100 petition signatures. CERTIFICATES OF MERIT will be issued certifying the major help of these volunteers. Ask for four more petitions.

This fight for clean waters is being carried on by hundreds of small donations! Your help will be appreciated!

Please clip out the attached OFFICIAL PETITION form for Initiative 203 and sign, along with as many of your friends as possible and return as soon as possible to:

CITIZENS FOR CLEAN WATERS
407 Lloyd Building · [illegible] · Seattle 1, Washington

R H Bailey
R. H. Bailey, Managing Director

Edward J. Gribble
E. J. Gribble, Secretary-Treasurer

PLEASE CUT THIS OUT EVENLY ON DOTTED LINE. SHEET MUST BE EXACT SIZE INDICATED. DO NOT MUTILATE OR CHANGE SIZE.

OFFICIAL PETITION—INITIATIVE No. 203

SPONSORED BY—

CITIZENS FOR CLEAN WATERS

Important Instructions

1. Only REGISTERED VOTERS may sign. SIGN ONLY ONCE.
2. Be sure every registered voter in your family signs. Women sign "Mary B. Smith" not "Mrs. John B. Smith."
3. Use either pen or pencil.
4. Return all petitions with whatever signatures you have, WITHIN THIRTY DAYS so we can judge our progress. Enclose request for additional petitions.
5. You can help by giving us addresses of friends or relatives in other parts of the state who are interested in Clean Waters.
6. If you cannot volunteer to get signatures, please give this petition to another. Our budget requires that every petition count.
7. We will appreciate modest contributions from Washington residents who wish to join in this campaign for clean waters.

Return to
CITIZENS FOR CLEAN WATERS
407-Lloyd Building
Seattle 1, Washington

We are all vitally interested, please do your best and return petition within 30 days.

WARNING

Every person who shall sign this petition with any other than his true name, or who shall knowingly sign more than one of these petitions, or who shall sign this petition when he is not a legal voter, or who shall make herein any false statement, shall be punished by fine or imprisonment or both.

INITIATIVE PETITION FOR SUBMISSION TO THE PEOPLE

To the Honorable Victor A. Meyers, Secretary of State of the State of Washington: We, the undersigned citizens of the State of Washington and legal voters of the respective city, town or county set opposite our names, respectfully order and direct that

INITIATIVE MEASURE No. 203

a full, true and correct copy of which is printed on the reverse side of this sheet shall be submitted to the legal voters of the State of Washington for their approval or rejection at the general election to be held on the 4th day of November 1958, and each of us for himself says: I have personally signed this petition; I am a legal voter of the State of Washington, in the city (or town), and county written after my name, and my residence address is correctly stated.

OFFICIAL BALLOT TITLE

WOOD PULP WASTE TAX

AN ACT imposing a tax on the discharge into state waters of liquid waste from any wood pulp production process by which wood is subjected to chemicals or solvents; creating certain exemptions; requiring reports to the state tax commission; and fixing the duties of state agencies in the operation of the act.

	Petitioner's Signature (Signature Mandatory)	Print Name Here For Positive Identification (Optional)	Street and Number or Rural Route and Box Number	Address Where Registered to Vote: City (or Town) Where Registered for Voting	County
1					
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POLLUTION

1. Pollution is a major problem in the State of Washington.

2. Methods have now been perfected for the salvage of pulp mill wastes and the manufacture therefrom of by-products.

3. Construction of by-product plants must await the release of the necessary materials, probably until after the war.

4. The Pulp Mills will then face the problem of financing such construction.

5. Of $30,000,000.00 gross profits of Washington Pulp Mills during 1942, fully $24,000,000.00 will go to income and excess profits taxes.

6. The Pulp Mills would be left in comparatively poor financial position after the war to undertake the financing of the by-product plants necessary to eliminate pollution.

7. This bill provides for the setting up of a reserve out of the present high gross profits of the pulp mills for use in post-war construction of by-product plants.

8. This reserve fund would be created by a levy of a $5.00 tax per ton of pulp produced so long as a pulp mill dumps its wastes into State waters.

9. The tax would automatically be cancelled as soon as the by-product plant thus financed goes into operation and eliminates the dumping of wastes into State waters.

10. This fund, under control of the State, would be loaned to the pulp mills for long terms at low interest rate for the construction of necessary by-product plants after the war.

11. Rehabilitation of the oyster industry would be accomplished by providing that 5% of said fund may be loaned to oyster growers whose beds have been injured by pulp pollution

12. This bill should have the support of the pulp mills as they would contribute only $1.00 per ton of pulp, or 20% of the tax, from their net profits to create this fund ample to solve the pollution problem in this State for all time to come.

13. The fund so created would provide for very necessary and desirable post-war construction and payrolls.

14. Initial development would provide for the use of the wastes as fuel but the ultimate development will bring about the production of thousands of tons of cheap plastics from these wastes, with large increases in both the payrolls and the profits of the pulp mills.

15. This was the prediction of the famous Dr. Steinmetz of the General Electric Company, made shortly before his death - namely, that the value in payrolls and profits from the pulp mill wastes, when properly treated, would far exceed the value of the pulp.

January 15, 1943

R. H. Bailey

APPENDIX #1
BILL'S RECORDING SERVICE

AN ACT Imposing and providing for the collection, enforcement and administration of a tax upon the exercise of the privilege of disposing pulp effluent in the waters of the State of Washington or waters contiguous to the State, and providing for the establishment of a Commission to direct disposal of funds so collected to correct the pollution of the waters and re-establish oyster beds injured or destroyed by pulp pollution.

BE IT ENACTED BY THE LEGISLATURE OF THE STATE OF WASHINGTON:

Section 1. The term "person" as used in this Act shall be construed to mean any person, firm, co-partnership, association, joint adventure and corporation, however organized.

Section 2. Upon every person now engaged in or continuing to, or who may hereafter engage in, or continue to engage in the business of manufacturing pulp and disposing of its' waste liquor or effluents in the waters of the State of Washington, a tax is hereby imposed equal to the sum of $5.00 per ton of pulp produced in the State of Washington, whether sold as pulp or manufactured into other products. Liability for this tax shall attach at the time and place of production, but such tax shall not be deemed to be due and payable until immediately before sale, barter, or exchange; or immediately before removal from the place of production; or immediately before the beginning of removal from the State.

Section 3. Within thirty (30) days after the closing of each quarterly period after this Act becomes effective as prescribed by law, every person engaged in the occupation or occupations defined by the provisions of this Act and discharging its waste liquor into the water of or contiguous to the State of Washington, shall file a quarterly report, under oath, covering such period, with the State Tax Commission of Washington, in accordance with the rules and regulations and upon such forms as may be prescribed by the State Tax Commission, said quarterly report to be accompanied by a remittance of the full amount due thereunder, which amount shall be made payable to the State Treasurer.

APPENDIX H2
BILL'S RECORDING SERVICE

Any taxpayer who shall fail or refuse to file such quarterly report and pay such tax within the time and in the manner above prescribed, shall be deemed delinquent and a penalty of ten per cent (10%) shall be added to the amount of the tax actually due for such period; provided, however, that the State Tax Commission may, in its discretion, claim an extension of time, not to exceed thirty (30) days, within which the tax for any quarterly period may be reported and paid without the addition of the ten per cent (10%) penalty.

Section 4. All books, way-bills, inventories, correspondence and memorandum relating to or used in transaction of the business of any person owning or operating such pulp mills and disposing of its waste liquor in the waters of or contiguous to the State of Washington, shall, on demand of the State Tax Commission, or its duly authorized representative, be open to inspection and examination. If anyone having charge, control or possession of such papers and books of such person shall neglect or refuse on demand of the State Tax Commission, or its authorized representatives, access to the papers and books aforesaid, he or they shall be deemed guilty of misdemeanor and upon conviction thereof, shall be punished therefor as provided by law.

Section 5. If any person subject to this Act shall fail to make the reports provided in Section 3 of this Act, at the time or in the manner provided, the State Tax Commission shall, in such case, upon such information as it may possess or obtain, ascertain the kind and amount of the product produced together with the value thereof, and shall thereupon find and determine the amount of tax due from such person, and there shall be added thereto a penalty of failure to report, which penalty shall equal ten per cent (10%) of the tax imposed and shall be treated as a part thereof.

Section 6. Findings and determinations of the State Tax Commission as to the amout of taxes due under the provisions of this Act shall be in all courts for all purposes prima facie evidence of the facts therein stated.

APPENDIX H3
BILL'S RECORDING SERVICE

Section 7. A tax due and unpaid under this Act shall be a first and perpetual lien upon all the property of the taxpayer against whom the taxes are assessed. The lien shall be perfected by the filing and recording of a notice of lien with the County Auditor in the county wherein the taxpayer resides or has property and shall thereafter constitute constructive notice to purchaser of the existence and superiority of the lien. Said notice of lien shall contain the name of the tax debtor, the amount of the taxes claimed to be due and the description of the property against which the lien is claimed. Upon the payment of said tax, the State Tax Commission shall release said lien.

All delinquent taxes imposed by this Act constitute a debt due to the State of Washington and may be collected by an action brought by the State Tax Commission in the name of the State of Washington against the delinquent tax debtor in any court or competent jurisdiction. No examptions from the execution of a judgment so obtained shall be permitted, except such as are made absolute by the exemption law of the State of Washington. Provided further that the payment of the tax levied by this Act shall be a condition precedent to the engaging or continuing to engage in the production of pulp in this State where pulp waste and effluent is disposed in the waters of the State, or in the waters contiguous to the State, and default in the payment of the taxes as herein provided, shall constitute cause for injunction in any court of competent jurisdiction upon the application of the State Tax Commission in the name of the State of Washington for an order retaining and enjoining a delinquent taxpayer from engaging or continuing to engage in such occupations or business within this State.

Section 8. All taxes imposed and collected under the foregoing provisions of this Act shall be paid into the State Treasury into a special fund known as the Pulp Pollution Fund.

Section 9. Any person who wilfully obstructs or hinders the State Tax Commission, or other public officer or employee from collecting the tax, or who makes a false or fraudulent report or return, with the intent to defraud the State, or to evade the payment of the tax, or any part thereof, or who wilfully fails to make or file any report or return as required by the terms of this Act, or who aids or abets another in any of the foregoing prohibited acts, shall be guilty of a misdemeanor, and on conviction thereof shall be punished as provided by law.

Section 10. Any taxpayer who is required by the State Tax Commission to pay a tax which he deems improper or unlawful in amount, may pay said tax under protest and may recover the same with interest, provided action is commenced within thirty (30) days, after such payment, against the State Tax Commission in any court or competent jurisdiction. Any judgment so obtained against the State Tax Commission shall be paid out of the said Pulp Pollution Fund upon a voucher duly approved by the State Tax Commission. Any remedy herein provided for shall be exclusive of all other remedies and no injunction to restrain or delay the collection of any tax claimed to be due shall be issued by any court of this State.

Section 11. There is hereby created a Commission to be known as Pulp Pollution Commission of Washington, consisting of three members: The Governor of the State of Washington, the Director of Fisheries and the Director of the Department of Health of the State. Said Commission shall have exclusive power and is hereby directed in accordance with the rules and regulations as the Commission shall adopt, to loan to any person operating a pulp mill within the State and disposing its waste liquor or effluents into the waters of or contiguous to this State, sums of money from said Pulp Pollution Fund to be used for the erection of such facilities as the Commission deem necessary to prevent the further pollution of said waters; that said loans may be made for such terms and conditions as the Commission shall deem reasonable, not to exceed twenty-five (25) years, with interest at the rate of one per cent. (1%) per annum, and take notes payable to the State of Washington therefor, and the Commission shall employ the service of such persons as may be required to carry out the purpose of this Act. Said Commission shall have authority under such rules and regulations as it shall adopt, to loan not more than five per cent. (5%) of the money paid into the said Pollution Fund, to such persons as have been engaged in the oyster production business in this State, and whose oyster beds have been injured or destroyed by pulp pollution, on such terms and conditions as the Commission shall determine. Such loans shall be made at the rate of one per cent. (1%) per annum for a period of ten (10) years, and in the event any loan made as herein provided and not paid in accordance with the terms of the loan, then the Pulp Pollution Commission shall have the right to institute an action in the name of the State of Washington against the person liable on said loan.

Section 12. In the event any person operating a pulp mill disposes of its pulp effluents into the waters of this State, installs an evaporation or other by-products plant, which, in the judgment of the Commission, successfully eliminates the pollution from the waters of the State, he shall not thereafter be required to pay the tax required by this Act.

Section 13. Should the court declare any section or provision of this Act unconstitutional or unauthorized or in conflict with any other section or provision of this Act, then such decisions shall effect only the section or provision declared to be unconstitutional or unauthorized, and shall not affect any other Act or part of this Act.

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The Pulp Mills Research Program at the University of Washington

VINCENT F. FELICETTA and JOSEPH L. McCARTHY

The Pulp Mills Research Program was established on Jan. 1, 1944, at the University of Washington by agreement with the pulp and paper industry and has been continued to date with grants of funds totaling about $500,000. Under the Graduate School of the University, chemistry and chemical engineering investigations have been and are being conducted dealing with the components of pulp and paper mill effluent streams, the utilization and disposal of these components, and the chemistry of wood and lignin. Methods have been developed or adapted for the determination of sulphur-containing components present in gaseous effluent streams from kraft pulp mills and also for the estimation of the several components present in sulphite spent liquors. Processes for the removal of odorous sulphur compounds from effluent gas streams are being studied. Sugars are important components of sulphite spent liquors and processes for their conversion into such products as industrial alcohol and fodder yeasts have been investigated. A new process for separation of the sugars themselves as a product is being studied. Lignin sulphonates are the major components of sulphite spent liquors and extensive investigations have been conducted to secure new information concerning the separation, purification, structure and reactions of lignin sulphonates in order to provide a basis for their utilization. More than 1,000,000,000 lb. of lignin sulphonates are available in the Pacific Northwest each year. Some lignin sulphonates are now being sold, for example, as Lignosites by the Puget Sound Pulp and Timber Company, and as Orzans by the Crown Zellerbach Corp., but the amount sold is still a small fraction of that available and much effort is being made to expand the markets for these products. Processes for the evaporation of sulphite spent liquors and the burning of the solids with heat and process chemical recovery are being developed but are difficult to justify economically and must be adapted to fit in with arrangements existing at a particular site. The research results arising from the PMR program at the University and from investigations being conducted in other laboratories are believed to be contributing to the increased utilization of lignins and other by-products of the pulp and paper industry and to be bringing nearer the day when complete and profitable use can be made of these materials.

THE great forests of the Pacific Northwest have been of continuing influence on the region and especially on the University of Washington since the University was founded in Seattle in 1861 and through its nearly a century of development to its present 16,000 full-time resident student population. The University offers many programs of study and research naturally including those relating to wood and wood products such as forestry, botany, chemistry, chemical engineering, and mechanical engineering. For example, at present in the Departments of Chemistry and of Chemical Engineering, 24 full-time professors provide instruction to undergraduate students and also advanced training to some 175 graduate student candidates for the degrees of Master of Science and Doctor of Philosophy in chemistry and chemical engineering. For more than 50 years, research papers on wood, cellulose, and lignin and related substances have been coming from the University Laboratories and many contributions have been made by Professor H. V. Tartar and the late Professors H. K. Benson, W. L. Beuschlein, and W. D. Dehn, and their students.

These researches became increasingly chemical in nature as the pulp and paper industry developed in the Pacific Northwest. As populations increased and wood became more valuable, progress was made in the better utilization of certain species of wood; for example, of hemlock for the sulphite process, and of Douglas-fir for the kraft process. However, the useful pulp or cellulose product comprises only about one-half or less of the weight of coniferous woods. The other wood constituents, consisting mostly of lignins and hemicelluloses and their derivatives of complex and not well understood chemical structure and reactions (*1–3*), become dissolved in the chemical solutions used to treat the woody tissue. These by-product substances are sometimes utilized, as mentioned below, but in many cases economic utilization methods are not yet available so some of the materials or their derivatives pass out of pulp mills in gaseous or liquid effluent streams which may give rise to objectionable effects when discharged into air spaces or water courses.

Thus during 1943 these problems of more complete utilization of forest growth and of stream improvement were considered at a series of conferences among representatives of the pulp and paper industry, the State government and the University. As a result of these discussions the Pulp Mills Waste Research Project was established at the University on Jan. 1, 1944 (*4*). The following quotations extracted from the industry-university agreement indicate the general nature and scope of the undertaking.

> "For study of these problems it was agreed that a staff of scientists should be assembled and a program of research formulated and carried forward for a period of at least 5 years. The attention of industry was called to the world-wide nature of these problems and to the difficulty that has attended much of this work and that no guarantee of successful solution of the problems can be given. Nevertheless, the research project is intended as a persevering effort to apply cumulative knowledge in the greater conservation of our forest growth. It was believed that such a project could be carried on advantageously at the University with its characteristic freedom and initiative in research.
>
> "The project concerns itself primarily with the effluents or waste liquors of the pulp mills. . . If this 50% of wood substance can be used commercially, it is obvious that an important element in conservation of forest resources will have been ac-

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V. F. FELICETTA, Research Assistant Professor, and JOSEPH L. McCARTHY, Professor, University of Washington, Seattle, Wash.

APPENDIX
BILL'S RECORDING SERVICE

complished. If, furthermore, untreated pulp mill wastes are no longer discharged into streams and waterways, it is equally obvious that stream improvement will have been accomplished. The project, therefore, deals with the utilization and disposal of pulp and paper wastes, and with the chemistry of wood and lignin."

Research was to be carried forward in three fields. Basic research on the chemistry of wood and lignins was to be conducted because the main organic constituents of pulp mill spent liquors are derived from lignins and the knowledge obtained regarding their chemical nature, structure, reactions and derivatives would constitute a basis for their use and disposition in industry and commerce. Utilization of pulp and paper mill wastes and of sulphite spent liquors in industry and trade was to be studied from a chemical engineering viewpoint including examination of the published literature, and experimentation and calculation concerning: (1) the compounds of waste liquors, their separation, in whole or in part, or their alteration to facilitate removal or reuse or new uses; (2) the carbohydrates in the spent liquors and the use of bacteria, yeasts, and molds to produce fermentation products of possible commercial values and; (3) the consideration of other chemical-base systems than calcium and the conditions under which the spent liquors of sulphite pulping may be processed by evaporation for recovery or reuse of its components. Disposal of pulp and paper mill wastes was to be studied by sanitary engineering and sewage disposal methods such as those involving oxidation and reduction methods of nullifying its biochemical oxygen demand, and physical methods for the removal and separation of constituents after chemical or biological treatment, and including the construction and operation of experimental setups and pilot plants. Disposal methods were studied by Professor R. G. Tyler and associates over the period of 1944 to 1949, and the chemistry, chemical engineering, and utilization aspects have been studied by the late Professor W. L. Beuschlein and by Professors A. J. Bailey, D. M. Ritter, V. F. Felicetta, and J. L. McCarthy and associates especially including Drs. Q. P. Peniston, A. E. Markham, and L. Fletcher.

The original agreement provided for the granting to the University by the industry of $50,000 to $60,000 per year to maintain the research and this program was supported by nearly all the pulp and paper mills in the State of Washington until about 1950. At that time the funds granted were reduced to $20,000 per year and only the sulphite pulp mills continued to support the research. In 1956 the support was broadened to include nearly all pulp and paper plants in the States of Washington and Oregon and one in California under the Northwest Pulp and Paper Association. The names of sponsoring companies are: Columbia River Paper Mills, Crown Zellerbach Corp., Fiberboard Paper Products Corp., Inland Empire Paper Co., Longview Fibre Co., Publishers' Paper Co., Puget Sound Pulp & Timber Co., Rayonier, Inc., St. Regis Paper Co., Scott Paper Co., Simpson Paper Co., West Tacoma Newsprint Co., Western Kraft Corp., Weyerhaeuser Timber Co. Funds granted were increased to and now stand at $35,000 a year. A summary of the expenditures made over the entire life of the Pulp Mills Research program is given in Table I. Additional support for the program has been provided by graduate and postdoctorate research fellowships granted by the Rayonier, Inc., the Weyerhaeuser Timber Co., the Hooker Electrochemical Co., the Procter and Gamble Co., the duPont Co., the Technical Association of the Pulp and Paper Industry, the University of Washington Engineering Experiment Station, and others.

Table I. Pulp Mills Research Expenditure Report[a]

For 161 months ending (May 31, 1957)

Amount of Agreement to August 31, 1958		$533,334.00
Disbursements		
Salaries and wages—clerical	$ 19,104.52	
Salaries and wages—research	369,392.09	
Salaries and wages—mechanic	3,935.74	
Retirement contributions	10,255.27	
Industrial insurance	1,882.37	
Communication tolls	734.34	
Postage, freight expense and printing	1,200.20	
Travel: subsistence and lodging	2,923.44	
Transportation	3,310.13	
Books	1,417.66	
Stationery and supplies	1,265.57	
Laboratory supplies	47,471.45	
Miscellaneous supplies	1,645.01	
Repairs to buildings and equipment	534.61	
Office equipment	880.61	
Mechanical and scientific equipment	15,544.55	
Compensating tax	404.65	
Total disbursements—161 months ending 31 May 1957		481,842.21
Unexpended Balance of Agreement as of 31 May 1957		$ 51,491.79

[a] University of Washington Budget 1090.

The program is administered through the Graduate School of the University (Dean H. Burd) by a Faculty Committee now consisting of Professors P. C. Cross (chemistry), B. Grondal (forestry), R. W. Moulton (chemical engineering), E. Ordal (microbiology) and upon which served for many years Professor Emeritus H. V. Tartar (chemistry) and the late Professor H. K. Benson (chemical engineering). The industry is represented by a Technical Mills Committee with members designated from the sponsoring companies. For the last several years, and until recently, the Mills Technical Committeemen have been H. Bialkowsky (Weyerhaeuser), E. O. Ericsson (Puget Sound), L. Forman (Scott), E. Green (Fiberboard), J. Holloway (Rayonier), and W. W. Moyer (Crown Zellerbach). The Mills Technical Committee has now been expanded to a membership of 15 and H. Bialkowsky is at present serving as chairman. The committee also advises the trustees who comprise the governing board of the Northwest Pulp and Paper Association.

The mills and university committeemen meet jointly each 4 to 6 months at the University and previously submitted written research reports are reviewed and discussed. Research is conducted in part by full-time personnel with Research Assistant Professor V. F. Felicetta, Assistant Chemist Mrs. M. Brownawell, and Engineering Aide Russell Martin at present serving in this manner and with Drs. A. E. Markham, Q. P. Peniston, and others having served in years past. University students in chemistry or chemical engineering have participated in the program using appropriate topics for investigation. Graduate students may be appointed research fellows or research assistants

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and use their research results as thesis material for their Ph.D. or M.S. degrees. In other cases part-time or temporary employment has been given to graduate or undergraduate students. By these arrangements, university students secure special research experience relating to the pulp and paper industry.

Original experimental records are kept in numbered laboratory notebooks and research results and plans are summarized in "weekly letters" written by each investigator. Progress reports are written when appropriate, often in the form of rough drafts of manuscripts, and these are submitted periodically to the committees at their now semiannual joint meetings. Completed investigations are reported at technical society meetings and published in appropriate journals. Patents are assigned to the University of Washington Alumni Foundation with shop rights reserved for the sponsors.

Many investigations relating to the problems of treating kraft pulp mill effluent streams and of utilization of sulphite spent liquors have now been carried out and others are in progress Thus, it has seemed worthwhile to prepare this progress report to summarize the nature and the results of the investigations completed or proceeding at the University of Washington as part of the pulp mills research (PMR) program or related thereto. In the literature citations given below, general references will be numbered as usual but specific references to PMR research will be cited separately by a number followed by the symbol "*R*."

KRAFT PULP MILL EFFLUENTS

When wood is treated by the "kraft" process, the substances sodium hydroxide and sodium sulphide in water solution act on the wood to leave in suspension the kraft pulp or kraft cellulose fiber product by dissolving the lignin and hemicellulose. This water solution of the process chemicals and noncellulosic components of wood is called "black liquor" and is carried through a series of chemical processes to recover the process chemicals for reuse and to secure useful heat by burning the organic matter from the wood. In the course of this recovery process, gaseous and liquid effluents may be discharged.

In the gaseous effluent streams, sulphur-containing reaction products of objectionable odor may be present. It has been found that this odor may be detected when the sulphur-containing substances are present in extremely low concentrations. For example, Freudenberg and Reichert found that the threshhold concentration for detection of methyl mercaptan was less than 1 volume of methyl mercaptan per 1 billion volumes of air (*5, 6*). Several PMR studies have been conducted to discover or confirm the chemical nature of these substances, to develop adequate analytical methods for their determination, and to find economical processes for their removal from effluent streams or for avoidance of their formation.

The chemical nature of major sulphur containing organic compounds in several kraft pulp mill gaseous effluent streams was investigated using the University's mass spectrometer (see Fig. 1) and the substances hydrogen sulphide, methyl mercaptan, dimethyl sulphide, and dimethyl disulphide were found to be present while sulphur compounds containing ethyl groups were found to be substantially absent (*1R*).

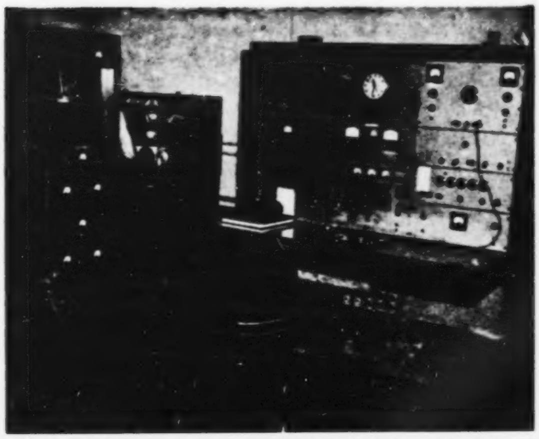

Fig. 1. Mass spectrometer used for kraft mill effluent gas examination

Attention was then turned to the development of methods for the analytical determination of these substances. An effective laboratory procedure for gas sample collection was devised whereby an evacuated bottle is used to collect a 20-l. gas sample and the sulphur compounds therein are absorbed into a small volume of added liquid benzene and aqueous sodium hydroxide solution. This type of process, although without the absorbent liquids, has been developed by DeHaas and Hansen (*7, 8*) for full mill-scale collection of digester blow gases and has been installed in plants of the Weyerhaeuser Timber Co. at Everett, Wash., and Springfield, Ore.

In the laboratory procedure the sodium hydroxide solution is separated and the dissolved hydrogen sulphide and methyl mercaptan is determined; the remaining benzene phase is analyzed to estimate the dimethyl sulphide and disulphide components present. The validity of the methods was established with pure samples of the sulphur compounds and then the methods were applied to estimation of these components in various kraft-pulp mill streams and the results were reported (*1R*).

With this fundamental knowledge of the nature of the substances of interest and of the concentrations in which the substances may be present in kraft pulp mill gaseous effluent streams, investigations were then directed and are still continuing toward the development of economical methods for avoiding discharge of the sulphur-containing substances. Because of the promise of the DeHaas-Hansen process (*7, 8*) for treating digester blow gas streams to remove most of the sulphur-containing substances, and also of the Crown Zellerbach process now operating on a pilot scale for the industrial production of dimethyl sulphide, most emphasis has been placed on the development of processes for treating recovery furnace effluent gas streams and these present difficult problems because they may amount to more than 100,000 cu. ft. per min. and contain the subject sulphur compounds in only very small concentrations.

A brief study was devoted to the removal of the objectionable sulphur compounds in furnace stack gas

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BILL'S RECORD [illegible]

by converting them to nonodorous substances by oxidation using the oxygen ordinarily present by passing the gas stream through a phenolic catalyst bed to cause the oxidation to proceed to completion: this approach was abandoned when the magnitude of such practical difficulties as catalyst stability, pressure drop, etc., became apparent (*2R*). Another process possibility is to selectively absorb the sulphur-containing substances out of the effluent gas stream and, to investigate this prospect, design calculations are being made on a new "ejector-scrubber" type of apparatus (*3R*). Still another approach to the solution of this problem is to try to avoid formation of the odorous sulphur compounds. In Tomlinson-type chemical recovery furnaces, a very small partial pressure of oxygen must and does prevail in the lower regions of the furnace while in the upper regions the partial pressure of oxygen is much greater. These conditions of oxygen partial pressure as well as the temperature and the gas residence time in recovery furnaces should influence the degree to which odorous sulphur compounds are formed. To try to relate the composition of furnace effluent streams with these furnace operating conditions, a series of extensive thermodynamic calculations have been carried out by Markham (*4R*), Lung (*5R*), Crawford (*6R*), and Paton (*7R*). Attempts are being made to predict and to establish economically operable furnace conditions whereby the formation of odorous sulphur compounds may be avoided or minimized. Investigations of this type are still continuing and final conclusions cannot yet be drawn, but indications are that minimum odorous sulphur compound formation is associated with very close control of the amount of air fed to a furnace and with carrying to completion the oxidation processes proceeding in the upper regions of the furnace.

Concerning kraft mill liquid effluent streams, it may be noted that investigations have recently been undertaken directed toward the securing of information concerning the nature of volatile substances in evaporator condensate waters and the processes by which the discharge of these substances can be avoided. A steam stripping process is being studied for treating the black liquor prior to its introduction into the evaporator system and preliminary results suggest that this process has considerable promise (*8R*).

SULPHITE SPENT LIQUOR AND ITS COMPOSITION

In the "sulphite" process, wood is treated with an aqueous bisulphite-sulphurous acid solution whereby there is obtained a suspension of the product sulphite pulp or sulphite cellulose fibers. There is also obtained a "sulphite spent liquor" or a "sulphite waste liquor" solution containing the process chemicals along with lignin and hemicellulose sugar derivatives. To provide a basis for development of methods for utilization of these components, a PMR program has been steadily carried forward to learn as much as possible about the components and their properties and reactions.

An important phase of this program is the development of methods for analysis of sulphite spent liquors. Thus, from published papers and with additions and improvements as we were able to make them, "PMR Standard Analytical Methods" (*9R*) were evolved and compiled in mimeographed form and distributed to the sponsors; i.e., (1) preparation and standardization of reagent solutions, (2) suspended solids, (3) pH determination and buffer preparation, (4) specific gravity, (5) potentiometric titration, (6) total solids, (7) calcium, (8) free and loosely combined sulphur dioxide, (9) sulphate, (10) total sulphur, (11) total reducing substance, (12) fermentable sugars, (13) Kjeldahl nitrogen, (14) "free" ammonia, (15) acetic and butyric acids, (16) methoxyl, and (17) diffusion coefficients. The methods are being improved and added to from time to time.

In the course of this work, it was found, for example, that the published methods for determination of sulphate in sulphite spent liquor were inadequate. Thus a new conductometric procedure was developed which proved to be reliable and relatively simple to carry out (*10R*) and a similar procedure was found suitable for total sulphur determination (*11R*). The sulphate method proved to be useful in that one serious difficulty experienced in attempting to carry out the evaporation of calcium sulphite spent liquor as a part of a recovery process is the rapid deposition of a calcium sulphate scale on metal heat transfer surfaces and this scale reduces the evaporation capacity of the equipment. The new analytical method permitted the concentration of sulphate in a spent liquor to be determined reliably and the results found could be related, on the one hand, to the delignification conditions which gave rise to formation of the sulphate, and on the other hand to the degree of difficulty experienced in trying to conduct the evaporation.

A number of the PMR Standard Analytical Methods were carried out upon a particular calcium-base sulphite spent liquor and the results obtained (*12R*) were as follows: pH 1.77; total solids, 115.4 g.p.l.; ash, 11.88 g.p.l.; CaO, 6.19 g.p.l.; "free" SO_2, 0.6 g.p.l.; "loosely combined" SO_2, 3.73 g.p.l.; sulphate, 1.14 g. SO_3 per l.; total sulphur, 8.92 g. S per l.; methoxyl, 7.84 g. OCH_3 per l.; total reducing substances, 26.78 g. glucose per l.; and fermentable sugar, 19.05 g. glucose per l. From these and other data, the estimates shown in Table II have been made of the proportion at which the major components in sulphite spent liquors are present (*13R*, *14R*).

Water is the major component of sulphite spent liquor and is usually present to the extent of about 90% or more. The remaining 10% or so of nonwater or "total solids" material consists largely of lignins in the form of lignin sulphonates and these are brown

Table II. Estimated Composition of Calcium Sulphite Spent Liquor

Component	*Composition* Liquor basis, %	Total solids basis, %
Total Solids		
Lignin sulphonic acids	6.5	65.0
Fermentable sugars	(1.5)	(15.0)
Nonfermentable sugars	(0.5)	(5.0)
Total reducing sugars	2.0	20.0
Calcium (as CaO)	0.7	6.7
Other compounds	0.8	8.3
	10.0	100.0%
Water	90.0	
Calcium sulphite spent liquor	100.0%	

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powders when purified and dried. The precise analytical determination of lignins and lignin sulphonates is very difficult, but estimates of their concentration can be made by determining analytically the concentration of methoxyl groups ($-OCH_3$) which are known to be characteristically associated with lignin sulphonates from softwoods to the extent of about 11%. On this basis it is found that lignin sulphonates comprise about 65% of the solids in spent liquors. Hemicellulose derivatives are also present as a mixture of hexose and pentose sugars amounting to 20% or so of the total solids. These sugars contain characteristic carbonyl or "reducing" groups which can be determined analytically and the "total reducing sugar" results for the existing mixture of sugars are conveniently calculated in terms of the particular sugar, glucose. Some of the sugars such as glucose or mannose are of such chemical structure that they can readily be fermented by yeast organisms and these "fermentable sugars" may amount to about 15% of the total solids. Other sugars may be present as carboxylate or sulphonate derivatives which are not "reducing" and these substances, together with small amounts of acetic and formic acids, furfural, terpenes, etc., are represented in Table II as amounting to about 8% of the total solids. The total sulphur present in spent liquors, about 7 or 8% of the total solids, is mostly attached to the lignin in sulphonate groups, but also exists, in small proportion, as sulphate and "free SO_2" and "combined SO_2" and other derivatives. The calcium, or another cation such as magnesium or ammonium or sodium, is present in ionic form to compliment the sulphonate and other anions and the calcium present (as CaO) usually is 6 or 7% of the total solids.

When sulphite spent liquor is to be discharged into a water course, it is important to be able to determine and predict its interaction with the receiving waters. Thus, the oxygen dissolved in water tends to react with and to oxidize spent liquor components, and this oxidation may be accelerated by the presence in water of certain microorganisms. Oxygen in air tends to dissolve in water to replace the consumed oxygen and keep the water saturated. If these processes become unbalanced so that dissolved oxygen falls to a low level, then fish and other water animals and plants may suffer. To forecast the probable results of discharge of effluents into watercourses, sanitary engineering methods have been developed for the determination of the "biochemical oxygen demand" (B.O.D.) or the "chemical oxygen demand" (C.O.D.) of the effluent.

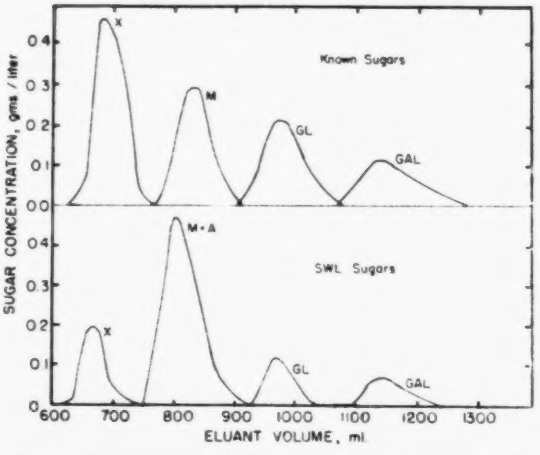

Fig. 2. Chromatographic elution curves for sugars: X, M, A, GL and GAL designate xylose, mannose, arabinose, glucose, and galactose, respectively

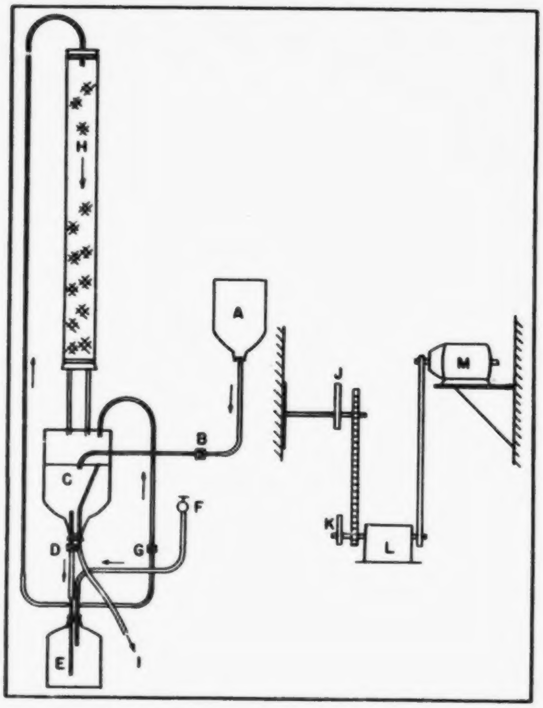

Fig. 3. Trickling filter apparatus for treating sulphite spent liquors

As part of the PMR program, the method for determination of B.O.D. of sulphite spent liquor was extensively investigated by Tyler and Gunter and their recommended procedure and the results obtained by its application were published in the *Sewage Works Journal* (*15R*). However, the B.O.D. determination is difficult to carry out reproducibly at different times and in different laboratories and is tedious. Thus, more recently, we have been developing procedures for C.O.D. determination (*16R*) and are finding that these are much more satisfactory to conduct and the results seem to be a better basis for consideration of interactions of spent liquors with receiving waters.

SULPHITE SPENT LIQUOR SUGARS

In taking up the problem of treating sulphite spent liquor by sanitary engineering methods, Professor Tyler and associates carried out experiments and first established that the total B.O.D. of the spent liquor arises largely as a result of the presence of the sugars which comprise only about 20% of the total solids (*15R*). With this information at hand, it became particularly important to find out as much as possible about the sugars in the spent liquors and how they might be removed or converted into useful products.

The effectiveness of various methods which might be used for processing sugars depends somewhat on the

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nature of the particular sugars present. To determine this, the sugars in a sulphite spent liquor made from western hemlock and white fir woods were separated and identified by a chromatographic procedure (Fig. 2). An estimate was made of the percentage of each sugar present (*17R*). Mannose was found to be the principal sugar (48% of the total reducing sugars) and associated with it were smaller amounts of glucose (15%), xylose (15%), galactose (10%), arabinose (6%), possibly fructose (2%), and some unidentified material (4%). Experiments in other laboratories have shown that the nature and proportion of the individual sugars present varies with wood species used and with processing conditions (*2, 3*).

Extensive research was conducted by Professor Tyler and associates on several processes for reducing the oxygen demand or sugar content of sulphite spent liquors. One approach was to bubble air through the receiving water after sulphite spent liquor had been discharged into it (*18R*) and an actual test of this "reaeration" process on a river showed it to be quite effective but rather costly to conduct because of the very large volumes of air pumped. Another approach studied was the removal or reduction of sugars in spent liquor by use of "trickling filters" (Fig. 3) whereby the liquor was permitted to flow by gravity down through a tower packed with stone or wood slats on which microorganisms were fixed. Air was also caused to flow through the tower and the result was the consumption by the microorganisms of sulphite spent liquor sugars and also a very substantial reduction in the oxygen demand of the liquor. It was concluded that this type of process presented difficulties in that, to process the very large volumes to be treated, large process equipment and air pumping capacity would be needed and substantial amounts of nitrogen containing substances would be required to be added (*19R, 20R*).

These findings indicated that it would be necessary to turn attention to the development of a process for converting the sulphite spent liquor sugars to some product which might be recovered and sold so that processing costs might at least in part be retrieved. From this viewpoint, it became essential to conduct the treating as economically as possible in all respects. Thus, the preparation of the sulphite spent liquor to permit maximum rate and extent of microorganism processing was desirable. Prior research studies, conducted at the University under the sponsorship of the Washington State Planning Council, had showed that this could be done effectively and continuously by stripping the liquor with steam to remove and recover useful sulphur dioxide (*21R, 22R*). This steam stripping process was adopted for use in our laboratory investigations and has now come into large scale use at several mills including the Puget Sound Pulp and Timber Co. at Bellingham, Wash., the Lake States Yeast Co. and the Charmin Paper Mills, Inc., in Wisconsin, and the Ontario Paper Co. at Thorold, Ont.

One marketable product which could be produced from the sugars in sulphite liquor was known to be ethyl alcohol. Although prior European research had given much information, certain additional PMR studies were carried out in this field. One of these by Tyler showed that alcoholic fermentation and the growing of fodder yeast reduced the B.O.D. of sulphite spent liquor to less than half the usual value (*23R*). Another investigation showed that sulphite spent liquors, which had been evaporated to quite concentrated solutions, could be fermented successfully to give ethyl alcohol and thereby minimize alcohol rectification costs and thus total production costs if the liquor was to be evaporated for other reasons (*24R*). The general situation with respect to alcoholic fermentation of sulphite spent liquor was recently reviewed by McCarthy (*25R*). While adequate processes are now at hand for production of industrial alcohol, the economic problems retarding large scale Pacific Northwest production are the high cost for plant and steam for processing the dilute alcohol solution obtained from fermentation and the freight cost for shipping the alcohol to the large consuming regions which are mostly in the East.

Attention was then turned to other salable products which might be produced from sulphite spent liquor sugars. After preliminary studies with microorganisms of several types which yielded butanol, acetic, and butyric acids (*26R*) and other substances, the production of a yeast product useful for animal or poultry feed was investigated. This product seemed preferable to an industrial alcohol product in that it could be separated from the liquor by mechanical centrifugation rather than the relatively expensive distillation, and in that a high-protein and vitamin-containing feed might perhaps be sold in the Pacific Northwest. Thus, several PMR studies were carried out on feed yeast production from the viewpoint of B.O.D. removal (*23R*) and processing under foaming conditions (*27R, 28R*). Finally, a continuous laboratory scale pilot plant (Fig. 4) was constructed and operated to secure information on characteristics of the yeast product and for engineering design (*29R*). It was concluded that feed yeast production could be carried out satisfactorily from a technical viewpoint and that the over-all economic prospects of the process rested on the securing

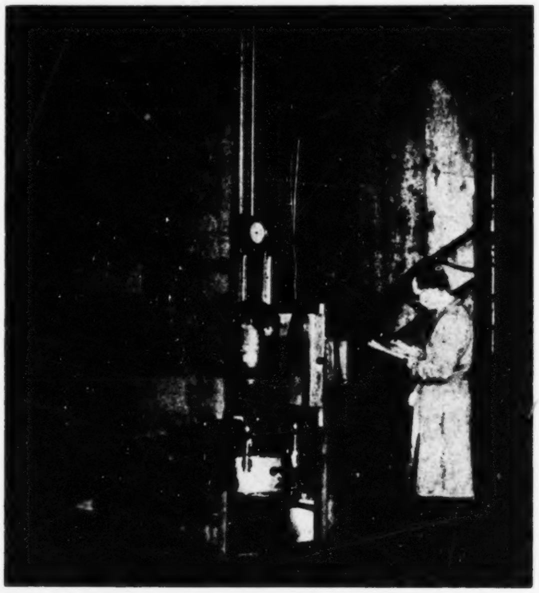

Fig. 4. Fodder yeast pilot assembly (with A. E. Markham)

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of good acceptance for the product in the market place. Commercial scale sulphite spent liquor feed yeast plants are now being operated in Wisconsin and markets are being developed for the feed yeast product (*9*).

The spent liquor sugars themselves might prove to be salable products if a practical way could be found for their isolation in relatively pure form and, based on this postulate, a number of procedures have been investigated as part of the PMR program. One method which was found to be effective as a laboratory procedure comprises the treating of sulphite spent liquor with an appropriate ion exchange resin to remove the cation (e.g., calcium) and then the passing of this liquor through an appropriate anion exchange resin column to remove nearly completely the lignin sulphonates and other anions, and thereby to provide a nearly water-white sugar solution with an electrical conductance about the same as that of water (*17R*). Another type of procedure is that illustrated by the industrial scale lime precipitation method of Howard (*2*, *3*) but lignin sulphonate precipitation and removal from sugars does not go to substantial completion in this and similar processes.

However, it was found in some of our laboratory investigations that lignin sulphonate salts could be formed with certain amines which would partition between immiscible solvents and, for example, Hiester (*30R, 31R*) studied the distribution of benzyl anilinium lignin sulphonates between water and butanol, and Markham (*32R*) showed that octadecyl dimethyl amine lignin sulphonates are nearly insoluble in water, may be dissolved in nearly dry organic solvents, and can be regenerated to a large degree. Other useful amines have been discovered more recently by Felicetta. A novel approach to sugar separation has been suggested by Neisch (*10*) and we have followed his procedure to find that a large fraction of spent liquor sugars can be selectively extracted from water into butyraldehyde, presumably as a result of acetal formation (*33R*). To secure nearly complete separation of sugars from lignin sulphonates by a solvent extraction process, multistage extraction is usually necessary so a 200-stage rotary contactor was designed and built, and later an automatic 100-stage Craig-type countercurrent distribution apparatus was designed and built (Fig. 5) and is now in frequent use (*34R, 35R*).

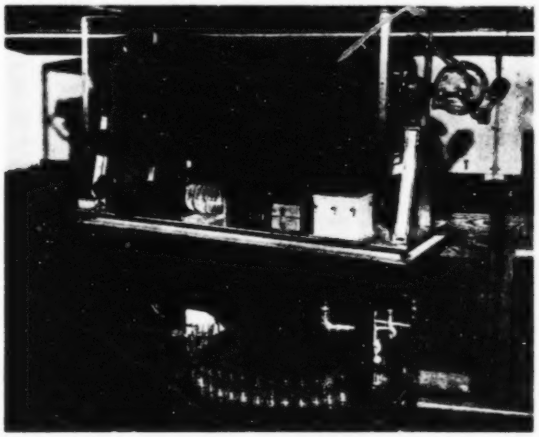

Fig. 5. One hundred-stage Craig-type automatic countercurrent distribution apparatus

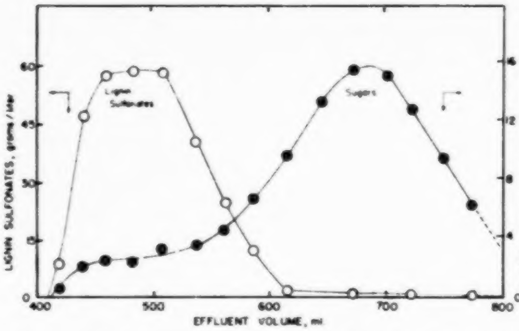

Fig. 6. Molecular sieve fractionation of calcium sulphite spent liquor (total solids = 115 g./l.)

For industrial scale separation of sugars from lignin sulphonates, a "molecular sieve" type procedure appears to have promise. Thus in PMR studies it has been found (*36R*) that if a volume of sulphite spent liquor is passed through a batch column containing appropriate porous particles (e. g., some types of ion exchanges resin particles), then in the effluent stream collected from the bottom of the column most of the sugars are found to be separated from most of the lignin sulphonates as illustrated in Fig. 6. The separation appears to occur mostly because the size of the pores in the particles is such that the larger lignin sulphonate molecules cannot enter and thus they pass directly down through the column, while the smaller sugar molecules do enter inside the particles and are somewhat retarded so they arrive at the bottom of the column later than the lignin sulphonates. The virtue of this separation process is that it can proceed at room temperature in about neutral solution without use of added chemicals or stoichiometric consumption of the molecular sieve particles, and its disadvantage is that dilution occurs during separation. Whether this process is economically feasible or not remains to be seen, but development is now under way of continuous process equipment and procedures (Fig. 7) for accomplishing separation of spent liquor sugars by this molecular sieve method (*37R*).

Work is continuing on these and other approaches to the utilization of sulphite spent liquor sugars which each year amount to about 300,000,000 lb. available in the Pacific Northwest.

SULPHITE SPENT LIQUOR LIGNINS

There is a vast and almost wholly empirical literature of perhaps 2000 patents and papers setting forth the different processes and products for utilization of lignin sulphonates and sulphite spent liquors (*13R, 14R*). These suggested utilization processes fall into two more or less distinct classes, i. e., those directed toward recovery of useful heat and/or process chemicals as will be discussed below, and those directed toward production of a salable product, such as a tannin, or an adhesive or a road binder, etc. However, all these prior proposals have not led to any substantial utilization of lignin sulphonate, and thus it appeared desirable not to continue empirical use studies as a major effort, but instead to concentrate PMR efforts at the Univer-

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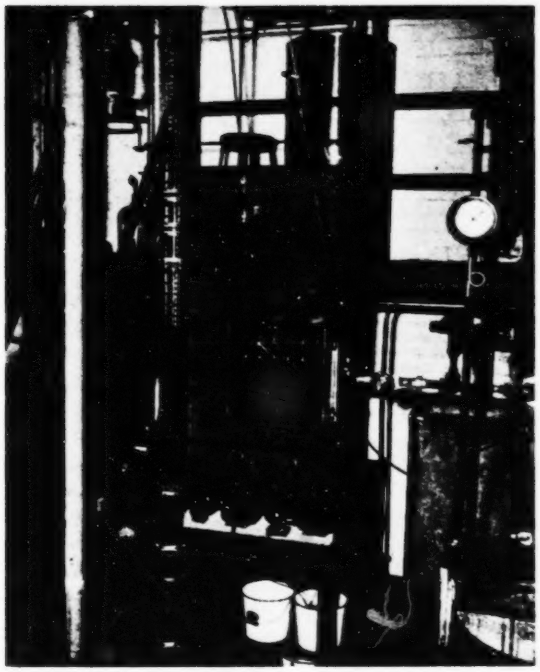

Fig. 7. Continuous molecular sieve separation column

sity on the securing of new and fundamental information about lignins and related substances.

As new results and theories have come forth, they have been made available to scientists and engineers in laboratories of the pulp and paper industry and other industries where immediate and specific use investigations and market development programs can often be advantageously conducted.

Of the various reasons why the substantial industrial utilization of sulphite spent liquor solids has been slow to develop, two important ones are thought to be the following: first *because the solids exist in dilute solution* so that about 10 lb. of water must be removed to secure 1 lb. of dry material which can be transported economically; and, second *because the solids consist of a mixture of substances* so that the physical and chemical properties of the whole solids are those associated with a random (from a use viewpoint) mixture and are not the clear-cut and unique properties often desirable for a particular use and associated with a specific chemical entity.

PMR experiments have been carried forward presuming that the prospects for utilization of sulphite spent liquor solids, and especially lignin sulphonates, should be improved by the development of methods and processes for accomplishing *separation* of the component types or classes from one another; e. g., water from the total solids, lignin sulphonates from sugars, high molecular weight lignin sulphonates from low molecular weight lignin sulphonates, etc. When a particular separation has been achieved and a certain substance, or a certain class of substances, is at hand, then *characterization* can be carried out to establish physical properties and/or chemical structure and reactions of the separated material. This characterization may reveal or suggest unique physical or chemical properties to serve as a basis for industrial *utilization* of the material.

Isolation of Lignin Sulphonates

Separation of the water from sulphite spent liquor yields the isolated solids which consist of lignin sulphonates to the extent of about 65%. Several lignin sulphonate preparations of this type are now being produced as concentrated solutions or as dry solids, for example, Orzans A, P, and Z which are manufactured by the Crown Zellerbach Corp. from ammonia or other base sulphite spent liquors.

Another operation is now conducted on an industrial scale by the Puget Sound Pulp and Timber Co. at Bellingham, Wash., and comprises the separation of sulphite spent liquor sugars by fermentation to yield industrial alcohol which is removed by distillation to leave behind dissolved solids enriched in apparently unchanged lignin sulphonates although still containing some "nonfermentable" sugars and other substances. Lignin sulphonate preparations of this type of perhaps 80 to 90% purity are now articles of commerce as "Lignosites." Somewhat similar preparations can be produced by recovery of the solids remaining after feed yeast production.

In the PMR program many investigations have been carried out of methods by which it seemed possible to secure separation of the nonwater components of sulphite spent liquor to achieve isolation of higher purity lignin sulphonate preparations, sometimes as laboratory procedures and in other cases as possibly attractive industrial processes. It has been found that metal salt precipitations of the Howard type with calcium hydroxide and other substances (*38R*) may be used to precipitate some lignin sulphonates in relatively pure form but, as will be discussed later, not all the lignin sulphonates are precipitated and those of lower molecular weight usually remain dissolved. Added inorganic salts or water-miscible organic solvents increase the degree of precipitation of the metal lignin sulphonates, but then the purity of the precipitate decreases because other components are also precipitated. Addition of very strong acids will also cause some but not complete precipitation of lignin sulphonates. In general, these procedures do not lead to complete separations of lignin sulphonates from sugars but they do permit separation of higher molecular weight fractions of the lignin sulphonates which may be desirable products for certain uses.

To provide a basis for complete separation of all lignin sulphonates from other spent liquor components, an attempt was made to find an amine lignin sulphonate which might be soluble in a water-immiscible organic solvent which might then be used in a multistage process to secure complete extraction of the lignin sulphonates from the water into the organic solvent phase. Hiester (*30R*, *31R*) tested many amines and found that the benzylanilinium lignin sulphonates showed partition coefficients of about 16.5 between butanol and water compared with values of about 0.12 found for sugars. Later studies by Markham (*32R*) showed that with appropriate amines such as the tertiary amine octadecyl dimethyl amine, some 96% of the methoxy groups (or lignin sulphonates) in sulphite spent liquor was precipitated in a single step under

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conditions in which nearly 90% of the reducing substances remained in the aqueous solution. Markham also showed that certain amine lignin sulphonate salts were very soluble in nearly water-free organic solvents; this made it possible to carry out in homogeneous solution chemical reactions requiring anhydrous conditions which could not readily be done previously. Other studies by Felicetta (*39R*) are in progress using multistage treatments in the Craig machine with various amines and organic solvents to separate lignin sulphonates from sugars and from each other, perhaps on a molecular weight basis. These amine salt extraction procedures are being found useful as laboratory methods to extract lignin sulphonates and leave behind purified sugar solutions. However, difficulties arise in that other acids than lignin sulphonates may also be extracted into the organic solvent and thereby contaminate the lignin sulphonates, and also in that the "back-extraction" (for example, with alkaline aqueous solution) to recover sodium lignin sulphonates and remove the amine is difficult to carry to completion. These studies are continuing.

Still another method to accomplish the separation of lignin sulphonates from sugars is to pass sulphite spent liquor through a cation exchange resin column to absorb the metal cation, then pass the resulting acidic liquor through an anion exchange resin column to absorb the lignin sulphonates in a multistage fashion and let sugars and nonelectrolytes flow through. Now if a sodium hydroxide solution is passed through the anion resin column, lignin sulphonates are stripped off the column as sodium salts (*40R*). With proper resins the procedure works very well in the laboratory for purification of sugars and for separation of a part of the lignin sulphonates; unfortunately, difficulty is experienced in removing all lignin sulphonates from the resin in the stripping step. The degree of lignin absorption obtained depends sensitively upon the nature of the particular resin used.

Indeed, it appears that the mean size of the "pores" in the resin particles influences or controls the degree of absorption of solutes so that the particles function not only as ion exchangers but also as "molecular sieves." As mentioned above, a molecular sieve-type process for separation of lignin sulphonates from sugars is thought to have promise of industrial application and is now being investigated and continuous processing procedures are being developed (*36R*, *37R*).

For laboratory preparation of a "pure" lignin sulphonate fraction, a molecular sieve type of procedure called dialysis has been found very useful. Dialysis of sulphite spent liquor against water using a cellophane membrane showed that substantially all sugars and other nonlignin sulphonate components plus the lower molecular weight half of the lignin sulphonates (e. g., below molecular weights of 4000 or so) passed through the dialysis membrane and left behind "nondialyzable" lignin sulphonates in an apparently high state of purity (*12R*, *30R*, *41R*). The effects of dialysis membrane structure and molecular diffusivity on the dialysis process were studied by Davis (*42R*). A continuous laboratory scale dialyzer was designed, constructed and built (*12R*). "Pure" nondialyzable lignin sulphonates produced in this fashion have been used in many PMR investigations and have been frequently sent to investigators in other laboratories in response to requests for samples of lignin sulphonates.

Fractionation and Molecular Weight Characterization of Lignin Sulphonates

As PMR investigations proceeded on the separation of sulfite spent liquor components to bring about isolation of lignin sulphonates, it became increasingly clear from observations of solubility and other properties that lignin sulphonates should be regarded as a whole family of substances, with the individual lignin sulphonates probably existing as members of a polymeric series. To secure a better understanding of this fundamental aspect of the chemistry of lignin sulphonates, a series of investigations has been conducted to separate or fractionate certain lignin sulfonates from other lignin sulphonates and then to characterize these respective products.

In one investigation (*43R*), nondialyzable lignin sulphonates as barium salts were fractionally precipitated from water solution by adding ethanol and the ten precipitated fractions were characterized. Chemical analyses showed that the ten fractions were roughly uniform in empirical composition and in ultraviolet absorption spectra (*43R*).

However, if the lignin sulphonates exist as members of a polymeric series, then differences should be found among the fractions in their molecular weights, or in properties related to molecular weights. One such property is the molecular diffusion coefficient and thus a new method was developed for relatively rapid and precise estimation of the diffusion coefficients of lignin sulphonates (*44R*). This method has proved to be very useful in many more recent investigations.

Measurements of diffusion coefficients of lignin sulphonate fractions were carried out and it was shown that the coefficients were markedly different for the various fractions and that they changed in an orderly manner with solubility and other properties, thus apparently affirming the existence of lignin sulphonates as members of a polymeric series (*43R*, *45R*, *46R*).

It then seemed worthwhile to obtain estimates of the actual molecular weights of the lignin sulphonates in various fractions and this was done by J. Moacanin, who used the thermodynamic method of light scattering to evaluate weight average molecular weights (*47R*). These results were empirically correlated with diffusion coefficients measured on the same fractions and this correlation curve has permitted molecular weights to be estimated from experimentally determined diffusion coefficients (*48R*). The data obtained were interpreted to indicate that lignin sulphonate molecules exist in solution as flexible and branched chains penetrated by aqueous solvents and probably in the shape of random coils (*48R*).

These studies on nondialyzable lignin sulphonates were later extended to include estimates of the molecular weights of the entire lignin sulphonates in sulphite spent liquors. The results obtained by Felicetta, Ahola, and McCarthy for a probably typical spent liquor indicate that lignin sulphonate molecular weights extend from a few hundred up to about 100,000 with a median at about 10,000 as illustrated in Fig. 8 (*49R*).

With other samples somewhat different distributions were found indicating the influence of species and of

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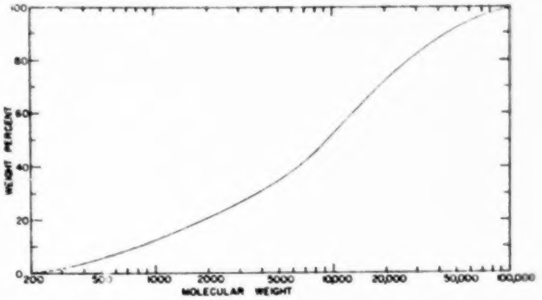

Fig. 8. Integral molecular weight distribution curve for lignin sulphonates in sulphite spent liquor

processing conditions. In other investigations, it has been found that as the delignification of hemlockwood proceeds using bisulphite-sulphurous acid solutions, the average molecular weight of the first dissolved lignin sulphonates is around 3000 or 4000, and, as additional lignin sulphonates become dissolved, this average molecular weight increases to a maximum value at about 12,000 or 15,000 about the time delignification has been completed, then falls off slowly to an average value of around 6000 or so (*50R*). These results are thought to indicate the presence in the lignin polymer of some relatively few structural units which are linked together by linkages which are hydrolyzable in acidic solutions whereas the larger proportion of the linkages are not hydrolyzable under these conditions. Experimental evidence for the presence of acid-hydrolyzable linkages has been obtained with nondialyzable lignin sulphonates thus indicating that not all of such linkages become hydrolyzed in the course of delignification of wood (*51R*). Preliminary evidence has been obtained indicating that the average molecular weights of hardwood lignin sulphonates may be much smaller than is the case with gymnosperm lignin sulphonates (*50R*, *52R*).

The finding that the molecular weights of lignin sulphonates were distributed over a wide range and that this distribution might not be the same in various preparations made desirable the development of a readily carried out procedure for evaluation of the distribution. The procedure of fractionation followed by molecular weight estimation for each fraction was conducted and found to be effective (*49R*) but very time-consuming. Thus, a series of investigations was carried out to develop methods by which the information obtained from diffusion measurements could be extended to include estimation of these distributions. It was first necessary to improve the diffusion apparatus and an improved cell holder was designed, built, and described (*53R*). Better methods for correcting the observations were evolved and an equation was developed for making a correction to account for the existence of a finite slit width (*54R*). The general experimental and mathematical procedures necessary for treating diffusion data to estimate distribution in diffusion coefficients or polydispersity in lignin sulphonate preparations, or in other polymer systems, were worked out by J. Moacanin (*47R*). Since complex and extensive calculations are required to apply these procedures, H. Nelson (*55R*) has now developed a program for carrying out the estimation of distribution using the University of Washington I.B.M. 650 calculating machine (Fig. 9).

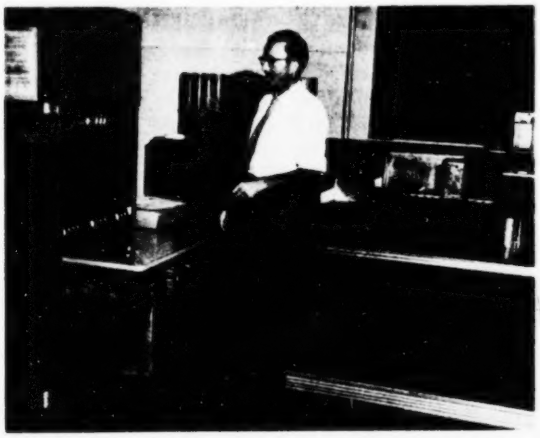

Fig. 9. I.B.M. 650 high speed digital computer (with V. F. Felicetta)

Experiments are now proceeding to obtain information on the molecular weight distribution of lignin sulphonates, kraft lignins, and other preparations, and to ascertain how these distributions are influenced by various treatments. This knowledge should assist in the development of uses for lignin preparations since the predominantly high molecular weight substances may be found particularly useful for certain purposes for which the low molecular weight lignins are unsuitable, and vice versa.

Chemical Characterization of Lignin Sulphonates

The lignin sulphonate fractions obtained in some of the experiments described above have also been in part characterized with respect to chemical composition, structure, and reactions. The chemical structure of lignin itself has been studied for well over 100 years and even today its structure is not yet established. However, from many pieces of evidence (*1–3*), it is now fairly clear that gymnosperm lignin is a polymer consisting at least largely of structural units of the phenolic propane type (Fig. 10).

How these units are joined together is not known but a speculative formula recently proposed by Adler is shown in the composition in Fig. 11. In PMR experiments, isolated lignin sulphonates were analyzed and the compositions found were calculated to a sulphonate-

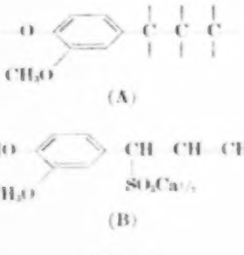

Fig. 10

(A) Probable basic unit of lignin from gymnosperm woods.
(B) Crystalline monomeric lignin sulphonate-type substance isolated from spent sulphite liquor.

APPENDIX ℓ-10
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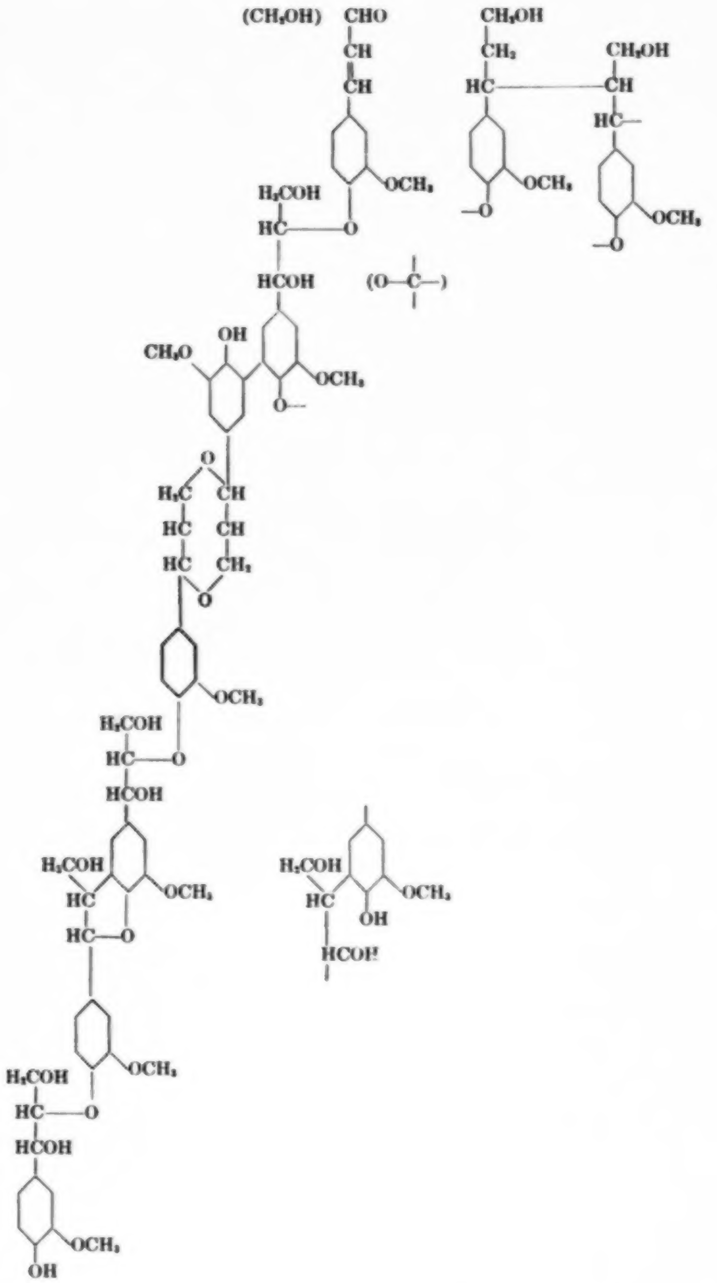

Fig. 11. The structural elements of lignin (Adler (11))

free basis to obtain the following average ratios of methoxyl, hydrogen and oxygen referred to a nine carbon skeleton:

$$C_9(OCH_3)_{0.8}H_{8.4}O_{1.5}$$

which suggest that some phenyl propane type units must be deficient in methoxyl, and that about 4.5 hydrogen atoms and 1.5 oxygen atoms are situated in the "side chain."

In other experiments by Ritter and co-workers (*56R*), the extent to which the various types of functional groups occurred in lignin sulphonates was investigated and their results can be summarized on a basis of a nine carbon atom unit as follows:

$$C_9(OCH_3)H_{7.4}O(SO_3H)_{0.5}$$

A conductometric study by Peniston and McCarthy (*57R*) suggested that free phenolic hydroxyl groups exist in lignin sulphonates to only a small extent and this matter is now being re-examined using a methylation procedure (*58R*). In another publication by Ritter and associates (*59R*), the problem of the constitution of gymnosperm lignin was discussed and the possible existence of a repeating C_{18} structural unit consisting of two phenyl propane type groupings instead of a repeating C_9 unit with one such grouping was suggested.

To secure additional fundamental information about the constitution of lignin, another approach has been to try to isolate and identify one or more of the monomeric or dimeric lignin sulphonates indicated as present in sulphite spent liquors from molecular weight distribution studies (*49R*), and therefrom then to try to deduce the structure of the higher polymeric lignin sulphonates. Thus fractionation studies have been in progress for some time and the isolated low molecular weight lignin sulphonates (*49R*) as well as similar substances such as monomeric and dimeric phenol-formaldehyde sulphonate (*60R*) have been characterized by several methods including a new electrophoresis procedure (*61R*). Some of these studies have led to the isolation in crystalline form of what appear to be monomeric and dimeric lignin sulphonates (*62R*). One crystalline monomer, designated as MA-1, and shown in Fig. 10 has also been obtained by chemical syntheses conducted by Glennie (*63R*) and Andrus (*64R*) and this synthetic program is being continued by Schubert (*65R*). These isolated low molecular weight lignin sulphonates are of interest with respect to lignin structure and also because, under appropriate conditions, they can be extracted into organic solvents as salts or as free acids (*43R, 48R*) and consideration is being given to the use of such an extraction process to separate and produce low molecular weight lignin sulphonates which may have industrial uses.

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However, the higher molecular weight lignin sulphonates comprise by far the larger portion of the total lignin sulphonates and, for these materials, uses may be sought on the one hand in unchanged form or in a physically purified or fractionated state, or, on the other hand, in a chemically modified state, for example, as an ether, or as a monomeric degradation product, or as a further polymerized product. Investigations of purification and fractionation methods for lignin sulphonates have been mentioned above and studies of chemical conversions have also been proceeding.

Thus, Ritter and coworkers conducted lignin degradation studies using periodic acid with certain phenols (*66R*) and with lignin sulphonates (*67R*). In connection with this work, several new substances were synthesized (*68R*) and the oxidation potentials were determined of some compounds related to vanillin (*69R*). The nondegradative oxidation of lignin sulphonates was studied (*70R*) and the action of N-bromosuccinimide on lignin sulphonates was examined (*71R*).

Other degradation studies have been directed toward extending knowledge of and, if possible, use of alkaline cleavage of lignins to yield vanillin and related substances (*1–3*). Various wood species and reaction conditions were investigated by Davis (*72R*), Reaville (*73R*). Tecklenberg (*74R*), Button (*75R*), Ryan (*76R*), and the several reaction products were characterized in part (*77R*). A previously unknown reaction product was isolated by Reaville and Tecklenberg, and Glennie (*63R, 78R*) showed by synthesis that the new product was vanilloyl formic acid. Granquist extracted lignin from Douglas-firwood with alkaline solutions in the presence of hydrogen and catalysts; he then oxidized the reduced lignins and examined the degradation products (*79R*).

Another approach toward the development of useful products is the conversion of lignin sulphonates to higher molecular weight substances. Thus, it has been found that heating of lignin sulphonates with formaldehyde under acidic conditions gives rise to insoluble products presumably as a result of progress of polycondensation reactions (*80R*). Some materials of this type with sulphonate groupings offer promise of use as ion exchange resins while others retain water solubility (*81R, 82R*) and studies on polycondensation are continuing.

Utilization of Lignin Sulphonates

These lignin sulphonate studies directed toward separation and characterization have received particular emphasis and the results obtained are now proving to be helpful in providing bases for the industrial utilization of lignin products, for example, for adhesives, chemicals, concrete and drilling mud additives, emulsifying agents, tanning materials, etc. To extend such utilization, what is necessary is the recognition and exploitation of properties which are useful and also more or less uniquely associated with the product.

Sulphite Spent Liquor Heat and Chemical Recovery Processes

Another method for utilization of sulphite spent liquor components, after removal of water, is to burn the organic substances to provide useful heat for mill operation and to recover the process chemicals in such a state that they can be re-used. Many processes designed to accomplish these objectives, wholly or in part, have been examined as part of the PMR program and a few of these investigations will be mentioned with particular attention to those in which complete utilization is contemplated.

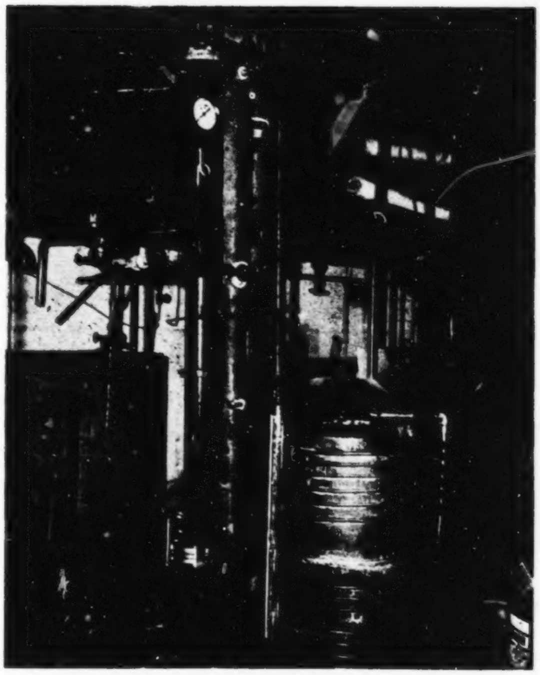

Fig. 12. Heat exchanger equipment for estimation of sulphite spent liquor heat transfer coefficients

In nearly all of these processes it is proposed that sulphite spent liquor be concentrated by evaporation. To aid in the design of equipment for evaporation and other process steps, data on the sulphite spent liquor properties of density, viscosity, specific heat, thermal conductivity, and Prandtl number at various concentrations and temperatures have been collected and published (*83R*). In another investigation, Grimsrud has evaluated friction factors and heat transfer coefficients for sulphite spent liquors at high concentrations (Fig. 12) (*84R*). Preliminary investigation was also carried out of the removal of water as ice by freezing but this procedure was concluded to be considerably more expensive than the usual evaporation.

Another step which is common to many recovery processes is that of absorption of sulphur dioxide from a gas stream into an aqueous solution. Thus the design of packed towers (*85R*) and of scrubbers (*3R*) for sulphur dioxide absorption has been studied. Since vapor-liquid equilibrium data for systems including sulphur dioxide and water is needed for absorption tower design and was lacking over some ranges of conditions, a program of research supported in part by TAPPI Research Fellowship grants has been proceeding to obtain such data (*86R–88R*) (Fig. 13).

With calcium-base sulphite spent liquor, in spite of many investigations and publications, there still does

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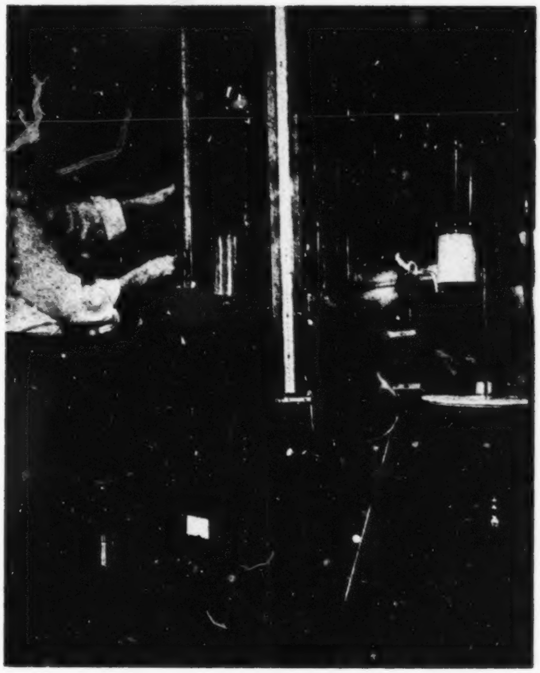

Fig. 13. Apparatus for vapor-liquid equilibria estimation in SO_2 systems using radioactive sulphur (with D. T. Hayden)

not appear to be available a sound complete process for the evaporation and burning of this liquor with recovery of heat and of process chemicals for re-use. "Wet combustion" processes have recently been proposed by Zimmerman and by Cederquist for treating sulphite spent liquors but from our calculations (*89R*) we have concluded that the power required to compress air needed for the oxidation is so great that the process does not appear to be economically feasible in the Pacific Northwest. A Zimmerman installation is now being built in Norway where power is very cheap and heat is expensive.

Better prospects seem to be developing for recovery processes based on use of other cations, i. e., magnesium, ammonium, and sodium. As background to consideration of these methods, and for other reasons, some researches on cellulose have been conducted (*90R 93R*).

The magnesia base or Tomlinson-Hatch process for evaporating and burning of magnesium sulphite spent liquor has not been studied except with respect to some previously mentioned preliminary calculations of furnace reactions (*4R*) because of the extensive prior studies conducted by its developers and because large scale installations are being operated by the Weyerhaeuser Timber Co. at Longview and Cosmopolis, Wash., and by the Ketchikan Pulp Co. in Alaska.

The ammonia-base sulphite process seems to permit more rapid delignification and also use of a wider range of wood species than the calcium-base process. Some 20% or so of the sulphite pulp manufacturing capacity in the United States has been converted to ammonia base, presumably for these reasons. The higher cost for ammonia versus calcium is balanced by the better processing secured but the economic desirability of recovering ammonia is clear and many investigations have been conducted to this end. As part of the PMR program, changes occurring during evaporation and other processing of ammonium sulphite spent liquors were evaluated (*94R*) and the combustion of ammonium sulphite spent liquor solids was studied by Markham. Later the Lebanon, Ore., plant of the Crown Zellerbach Corp. was converted by this company with the Scott Paper Co. to an experimental operation whereby ammonia-base liquor is evaporated and the concentrated solution obtained is sold or else burned with recovery of heat and suphur dioxide but not ammonia which is lost in the furnace. In another investigation by Markham (*95R*), pyrolysis of the liquor solids to recover ammonia was studied and it was shown that some 90% of the ammonia could be obtained in the vapor phase but difficulties were foreseen in operation of a full recovery cycle (*95R*). Other investigations were conducted on an ion exchange resin process for ammonia recovery whereby ammonia would be absorbed from sulphite spent liquor on to an ion exchange resin and then recovered therefrom with a sulphurous acid solution but this process (*96R*) did not appear promising for large scale continuous use because of the unfavorable sulphurous acid equilibrium (*97R*) and the cost of recovering sulphur dioxide as relatively concentrated sulphurous acid solution (*98R*). Relative to this and other applications, continuous countercurrent ion exchange processes were studied from a chemical engineering point of view (*99R, 100R*). At present the best prospect for ammonia recovery is by pyrolysis and this matter is now being re-examined.

The sodium-base sulphite pulping process is still another alternative for consideration and this process appears to have many of the advantages attributed to the ammonia process and, in addition, sodium will survive thermal reactions in a chemical recovery furnace. Many systems have been proposed for processing acidic sodium sulphite spent liquor to recover heat and process chemicals but, so far as is known, no plants of this type are in operation in North America and there are only two such installations in the world, one in Sweden and another in Finland. In relation to the PMR program, Tyler proposed that calcium-base sulphite spent liquor could be passed through a sodium-form cation exchange resin column to provide sodium-base sulphite spent liquor for further processing as desired, while sea water would be passed through the calcium resin to regenerate the sodium-form resin (*101R*).

Many possible sodium-base recovery cycles have been studied and what we believe to be the best features available in systems of this type have been brought together in PMR Process 70C which is sketched in Fig. 14. Sodium sulphite spent liquor would preferably be steam stripped to permit recovery of some concentrated sulphur dioxide for re-use and also a reduction in acidity. After some neutralization and then evaporation to a concentrated solution, the solids would be burned in a Tomlinson-type furnace. The sodium carbonate-sodium sulphide smelt therefrom would be selectively dissolved or crystallized to yield pure sodium carbonate. This in turn would be used in solution to absorb sulphur dioxide from the furnace stack gases to provide a sodium bisulphite solution for re-use.

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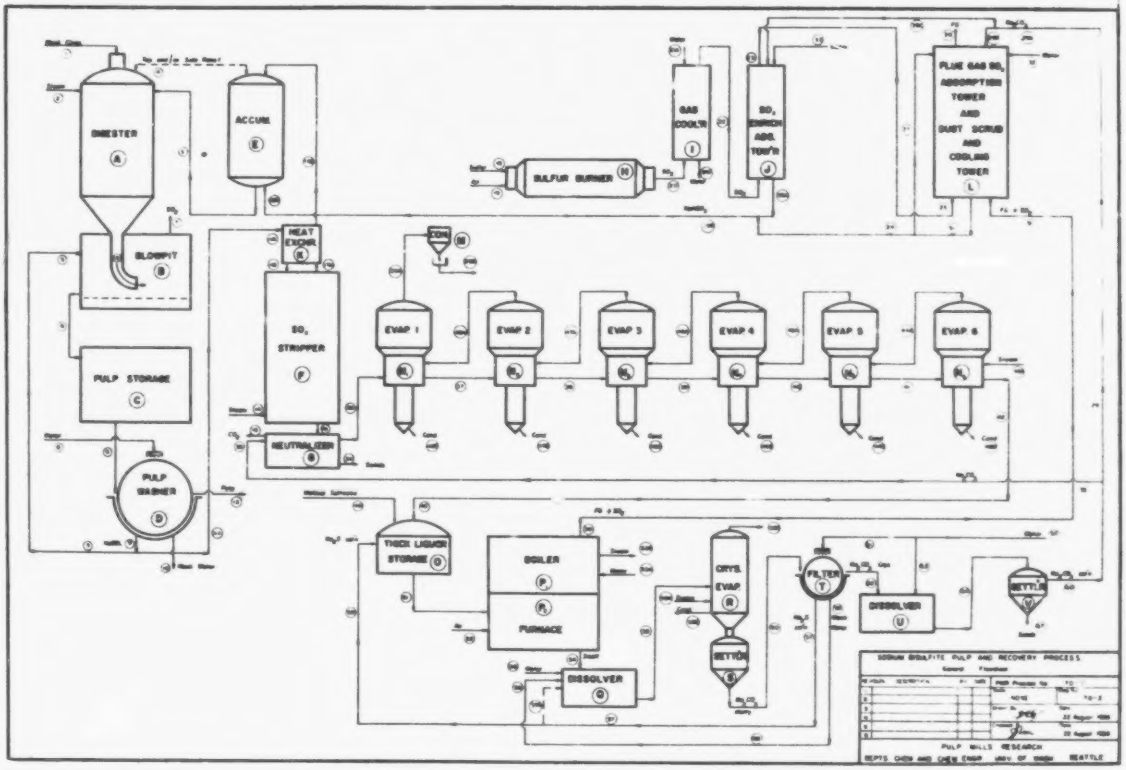
DIGESTER
A
ACCUM
E
BLOWPIT
B
PULP STORAGE
C
PULP WASHER
D
SO_2 STRIPPER
F
HEAT EXCHR
K
NEUTRALIZER
N
SULFUR BURNER
H
GAS COOL'R
I
SO_2 ENRICH ABS. TOW'R
J
FLUE GAS SO_2 ABSORPTION TOWER AND DUST SCRUB AND COOLING TOWER
L
CON
M
EVAP 1
EVAP 2
EVAP 3
EVAP 4
EVAP 5
EVAP 6
THICK LIQUOR STORAGE
O
BOILER
FURNACE
DISSOLVER
Q
CRYS. EVAP
R
SETT'R
S
FILTER
T
DISSOLVER
U
SETTLER
V
SODIUM BISULFITE PULP AND RECOVERY PROCESS
PULP MILLS RESEARCH
DEPTS CHEM AND CHEM ENGR UNIV OF WASH SEATTLE

Fig. 14. Tentative generalized flow sheet for sodium bisulphite pulping and recovery process

The predominantly sodium sulphide mother liquor solution would be returned to the furnace where it would be converted in part to sodium carbonate so that a continuous system could be maintained. Preliminary material balances for this process have been calculated (*102R*) and certain questionable steps are being investigated by theoretical calculations or by laboratory experiments. Thus, since it is particularly important to recover the maximum proportion of sodium carbonate rather than sulphide in the furnace smelt, optimum conditions of furnace operation to achieve this are being sought in thermodynamic calculations (*4R–7R*). Since it is important to be able to recover pure sodium carbonate by crystallization from aqueous sodium sulphide and since equilibrium data for this system had not been obtained, experiments to secure it have recently been conducted by Martin and the authors (*103R*). To bring about absorption of sulphur dioxide from furnace gases into the sodium carbonate solution, the design of an ejector scrubber is being investigated (*3R*). The data obtained so far indicate that this sodium cycle has much promise but further laboratory and pilot plant studies will be required before its economic aspects are evaluated.

In general, it seems probable that no one of these sulphite spent liquor processes will be suited to universal application. In some cases partial utilization methods can be considered such as production of yeast, or industrial alcohol, or lignin sulphonate preparations. In other cases it may be that disposal by ponding or by piping the liquor to a large scale dilution site may be desirable pending further development of treating methods. Complete utilization processes comprising evaporation and then burning of solids to recover heat and chemicals are being developed for magnesium, ammonium, and sodium-base sulphite pulp mills although such installations require heavy outlays for plant equipment and special attention to many factors such as wood species to be processed and amounts of salt in water-borne logs.

Complete and profitable use of spent liquor components, sugars, lignin sulphonates, and other by-products of the pulp and paper industry is what is being sought and it is believed that this goal is being brought nearer as a result of the new information arising from research conducted in the PMR program at the University of Washington and in other laboratories.

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APPENDIX 2-16
BILL'S RECORDING SERVICE

STATE OF WASHINGTON)
) ss
COUNTY OF GRAYS HARBOR)

Ralph Birkinshaw, being duly sworn, under oath deposes and says: That he originally went to Grays Harbor in 1904; that he and his wife have operated Birk's Motel at Westport for the past seven years; that the patronage of his motel depends on there being good fishing off Grays Harbor but that the fishing has been getting worse and the total take of fish has been greatly reduced in recent years; that in the late Summer of 1955 when he was returning from fidhing and was in the vicinity of buoy No. 9 just inside the entrance to Grays Harbor, he saw countless thousands of herring jumping into the air and falling back into the water bellies-up and sinking; That the herring were dying over a very large area on all sides of the boat from what we believed was a lack of oxygen; that he further states that some years ago when the output of pulp and therefore digester liquor was much less than today, the herring would spawn on the piling in the bay and also on the bottom of the boats to the extent of creating a nuisance; that this has not happened in recent years since the increased capacity of the Hoquiam pulp mill and the addition of the relatively small percentage of liquor discharge from the Cosmopolis mill.

WITNESS my hand and seal this 31st day of December, 1958.

Ralph Birkinshaw
Ralph Birkinshaw

Subscribed and sworn to before me this 5th day of January, 1959

Clark Cottrell
Notary Public in and for the State of Washington residing at Grayland

NEWS RELEASE   RELEASE UPON RECEIPT

DATE: AUGUST 25, 1961

FROM: PACIFIC COAST OYSTER GROWERS ASSOCIATION, CHARLES R. POLLOCK, SECRETARY

MILO MOORE FORMER WASHINGTON DIRECTOR OF FISHERIES, AND NOW SPECIAL CONSULTANT TO THE PACIFIC COAST OYSTER INDUSTRY, SPEAKING BEFORE ITS BOARD OF DIRECTORS, SAID: "FOR THE PAST FIFTEEN YEARS, THE PULP INDUSTRY HAS SOUGHT TO SET ASIDE EVERY EFFORT TO ENFORCE POLLUTION LAWS AND REGULATIONS DESIGNED TO ELIMINATE THE DISCHARGE OF HARMFUL PULP MILL WASTES INTO PUBLIC WATERS. THE PULP INDUSTRY HAS THROUGH DISSEMINATION OF PROPAGANDA AND BY APPLIED POLITICAL PRESSURE TRIED TO CONFUSE THE ISSUE AND NULLIFY THE POLLUTION COMMISSION"S EFFORTS. OUR POLLUTION COMMISSION AND ITS STAFF HAVE BEEN SUBJECTED TO MISINTERPRETATIONS OF THEIR VIEWS AND THEIR ANALYSIS OF THEIR TECHNICAL STUDIES OF PULP MILL POLLUTION. THEY HAVE IMPLIED THAT THE STATE POLLUTION CONTROL COMMISSION HAS THREATENED TO SHUT PULP MILLS. THIS IS NOT CONSISTENT WITH THE FACTS TO MY KNOWLEDGE AS A MEMBER OF THAT COMMISSION FOR EIGHT OF THE SIXTEEN YEARS SINCE ITS CREATION. THEY HAVE INTIMIDATED THEIR OWN EMPLOYEES AND THE LOCAL COMMUNITIES BY THREAT OF SHUT DOWN IF CONTROL REGULATIONS ARE ENFORCED. THE FACT REMAINS THAT THEPULP MILLS CONTINUE TO DUMP MILLIONS OF GALLONS OF THEIR WASTE, A CORROSIVE ACID, WHICH CHANGES THE NATURAL STATE OF OUR WATERS AND CONSTITUTES GROSS POLLUTION WHICH IMPAIRS THE VALUE OF CLEAN WATER TO OTHER INDUSTRIES. A SMALL SEGMENT OF THE PULP INDUSTRY HAS NOT COMPLIED WITH THE LAW BUT THESE FEW ARE THE MAJOR POLLUTERS OF OUR STATE WATERS. THEY NOW THREATEN TO CHALLENGE THE AUTHORITY OF THE STATE IN ORDERING THEM TO MODERNIZE THEIR PLANTS."

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APPENDIX K
BILL'S RECORDING SERVICE

NEWS RELEASE **FOR IMMEDIATE RELEASE**

DATE: OCTOBER 9, 1961 - SEATTLE, WASHINGTON

FROM: MILO MOORE, REPRESENTING THE PACIFIC COAST OYSTER GROWERS ASSOCIATION

IN REPLY TO RECENT PUBLIC ANNOUNCEMENTS BY PULP AND PAPER MILL REPRESENTATIVES, THAT 100 MILLION GALLONS OF THEIR INDUSTRIAL WASTE RELEASED DAILY INTO PUBLIC WATERWAYS OF THIS STATE CAUSES NO HAZARD TO OTHER INTERESTS.

THE PROBLEMS CREATED BY THE UNCONTROLLED RELEASE OF PULP AND PAPER MILL WASTE INTO WATERWAYS THROUGHOUT THE WORLD HAS CAUSED GREAT CONCERN WHEREVER SUCH PLANTS EXIST. SCIENTIFIC ANALYSIS OF THE HARMFUL EFFECTS UPON THE MARINE RESOURCES HAVE VARIED ACCORDING TO THE FLUSHING WATERS WHERE DILUTION OF PULP AND PAPER MILL WASTE TAKES PLACE. THE PROBLEM OF POLLUTION CONTROL REVOLVES AROUND THE DEGREE OF ORDERLY GOVERNMENT MAINTAINED AMONG THE PEOPLE OF THE AREAS AFFECTED.

PHYSICAL AND CHEMICAL CHANGES IN THE NATURAL STATE OF WATER WHERE QUANTITIES OF INDUSTRIAL WASTES ARE DILUTED INTO IT (TO LESSEN ITS VALUE FOR OTHER USE), UNQUESTIONABLY CONSTITUTES POLLUTION.

INDIVIDUAL PROPERTY RIGHTS HELD SACRED UNDER THE CONSTITUTION INVOLVES BOTH UPLAND AND SUBMERGED TIDELAND AREA. IT FOLLOWS COMMON LAW, AND LEGAL PRACTICE THAT NO ONE SHALL HAVE THE RIGHT TO IMPAIR OR DESTROY THE PHYSICAL VALUE OF PROPERTY OF OTHERS OR TO CREATE UPON PUBLIC THOROUGHFARES WHAT MIGHT BE DETERMINED A PUBLIC NUISANCE. PUBLIC WATERS AND THE LAND UNDER IT IS LIKEWISE SECURED IN THE PUBLIC INTEREST UNDER COMMON AND CIVIL LAW.

FOR THE PAST FIFTEEN YEARS THE PULP AND PAPER MILL INTERESTS OF THIS AND OTHER STATES HAVE SOUGHT TO SET ASIDE ALL OR ANY EFFORTS MADE TO ENFORCE STATE POLLUTION CONTROL REGULATIONS DESIGNED (IN COMPLIANCE WITH STATE LAW) TO ELIMINATE HARMFUL PULP AND PAPER MILL WASTE FROM BEING RELEASED INTO PUBLIC WATERS. THE SITUATION HAS BEEN FURTHER COMPLICATED BY THE DISSEMINATION OF FALSE PROPAGANDA AND APPLIED POLITICAL PRESSURE.

THE WASHINGTON POLLUTION COMMISSION, ITS STAFF AND ADVISERS, HAVE OFTEN BEEN SUBJECT TO MISINTERPRETATION OF THEIR VIEWS AND THEIR ANALYSIS OF TECHNICAL FINDINGS WITH RESPECT TO POLLUTED WATERS.

THE POLLUTION COMMISSION FOR THE PAST FIFTEEN YEARS HAS ISSUED ORDERS TO CITIES AND TOWNS AND TO OTHER INDUSTRIES AND TO INDIVIDUALS TO CEASE THEIR CONTAMINATION OF PUBLIC WATERS, AND HAVE RECOMMENDED INSTALLATION OF WASTE TREATMENT FACILITIES. ALL, BUT A FEW PULP AND PAPER MILL OPERATORS, (WHO ARE THE WORST OFFENDERS), HAVE WITHIN A REASONABLE TIME COMPLIED WITH THESE REQUESTS

-MORE-

APPENDIX L-1
BILL'S RECORDING SERVICE

NOW, THE PUBLIC INTEREST IN POLLUTION CONTROL IS AGAIN SUBJECTED TO DEBATE, AND A CHALLENGE MADE BY THESE FEW PULP MILLS SEEKS TO QUESTION THE POLLUTION COMMISSION'S LEGAL RIGHT TO ISSUE ORDERS TO CORRECT THEIR HARMFUL AND WASTEFUL PRACTICE OF RELEASING INDUSTRIAL WASTE INTO PUBLIC WATERS.

NO ONE DENIES THAT THE WATERS OF STREAMS, BAYS, AND INLETS ARE BROWN WITH PULP AND PAPER MILL WASTE WHERE SUCH PLANTS EXIST, AND THE SCIENTIFIC ANALYSIS OF THIS WASTE IN SMALL DILUTED QUANTITIES HAS BEEN DETERMINED INJURIOUS TO AQUATIC LIFE, AND TO THE RECREATIONAL VALUES OF SUCH AREAS, AND THAT THIS WASTE IN A STRATAFIED AND DILUTED FORM, CARRIED BY THE TIDE, WIND, AND CURRENTS, PASSES ON TO AFFECT AREAS A CONSIDERABLE DISTANCE FROM THE POINT OF RELEASE.

PULP MILL REPRESENTATIVES DO, HOWEVER, CONTINUE TO PRESS FOR THEIR RIGHT TO MULTIPLE USE OF PUBLIC WATERWAYS FOR THEIR ECONOMICAL DISPERSION OF EXCESS WASTE IN SOLUTION FROM THEIR PLANTS.

WITH THESE CONDITIONS IN MIND, I BELIEVE THE WASHINGTON STATE POLLUTION COMMISSION HAS ACTED FAIRLY AND ACCORDING TO THEIR RESPONSIBILITY UNDER STATE LAW, AND IN THE PUBLIC INTEREST IN DEMANDING ACTION BY THE PULP AND PAPER MILL OPERATORS TO INSTALL THE BEST KNOWN METHODS TO REDUCE THE QUANTITIES OF WASTE SOLIDS AND TOXIC SOLUTIONS NOW BEING RELEASED (AS A PUBLIC NUISANCE) INTO PUBLIC WATERS OF THE STATE.

IT IS IMPERATIVE TO THE INDUSTRIAL GROWTH AND RECREATIONAL NEEDS OF THIS AND OTHER STATES FOR THE POLLUTION COMMISSION AND OTHER RESPONSIBLE AUTHORITIES TO HOLD FAST TO THEIR DETERMINATION TO FORCE COMPLIANCE OF ALL INTERESTS ALIKE IN THE CONTROL OF ALL FORMS OF EXCESSIVE WASTE RELEASED INTO PUBLIC WATERS.

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APPENDIX L-2
BILL'S RECORDING SERVICE

fishermen's news—5
THURSDAY, DECEMBER 21, 1961

Bailey Charges Pulp Mills With Stalling

R. H. Bailey, president of the Pacific Coast Oyster Growers Association, last month charged attorneys for the pulp industry with "legal stalling" in the pre-hearing conferences now being held in Seattle by the Pollution Control Commission.

Bailey said: "It is obvious to all who are attending these pre-hearing meetings that the dozen or more high priced attorneys representing the various pulp mills are deliberately attempting to procrastinate and delay these meetings with the apparent intention of making it impossible to hold the final hearings as scheduled. In the meantime the pulp mills continue to use their great financial position in the local communities to exert economic pressure on local businessmen and to intimidate their employees with threats of shut-down if they are forced to make improvements which would clean up their pollution problem. All this in spite of the fact that most industries, including the majority of the pulp mills, have already complied with the Washington state Pollution Control Commission's orders and have eliminated 80 percent of their pollution.

"We shall continue to insist that the hearings as scheduled be carried out by the commission on time. We intend to intervene at the appropriate time and present evidence which will conclusively prove the guilt of these pulp mills in polluting our waterways."

APPENDIX M

SPORTS
Seattle Post-Intelligencer

The Morning After

Dead Fish Can't Talk — But Somebody Must Answer

By Royal Brougham

Fishing experts say yes, the pulp and paper mill people say no. But the poor salmon aren't quoted in the newspapers.

Tragedy on the Beach

Meanwhile the Northwest's great fighting game fish are still being destroyed faster than nature can reproduce the species.

The U.S. Public Health Service stoutly backs this state's Pollution Control Commission, to wit: sulphite and wood fibre are doing most of the damage. This week the mills were warned of the seriousness of the situation.

Venton Bacon, talking for the mill owners, say nobody has ever proved that waste disposal is responsible.

To arouse the apathetic public, once or twice we have pulled out of the morgue the picture shown here, taken not so many years ago. This is just a portion of a photo showing five miles of beach near Everett litterly stacked with dead fish. Investigating biologists claimed the adjacent pulp mill was the culprit.

The tragedy is fishing in that area which was once a favorite haunt of the salt water anglers has never flourished since.

Well, the boys had better quit arguing and swing into action soon or the salmon will go the way of the buffalo and the whooping crane.

We'll have to take a thousand mile trip into Alaskan waters to tie into a 30-pound King Salmon, instead of netting one of those flashing beauties in Elliot Bay before breakfast.

N

SERVICE

Pollution Is Causing Huge Salmon Losses

APPENDIX O-1
BILL'S RECORDING SERVICE

BY JOHN METCALF

It is one thing to walk the beaches of Puget Sound and see the evidence of sewage pollution. It is quite another to realize if only in part the harm which waste materials dumped into the waters have done to our wildlife.

You do not have to travel very far along the shores anywhere near Seattle to see some effects of the raw sewage poured into the waters from a half million people. And remember, what you see is but a tiny fraction the major portion being lost from human sight or sense.

The University of Washington recently carried out a survey of the shore area from Richmond Beach south to White Center. As reported in the Seattle P-I for July 9th a "Dangerous contamination by sewage of all Sound and Elliott Bay beaches" is indicated. Professor R. O. Sylvester of the U. of W. civil engineering department, said: "There is evidence that all Sound beaches are being contaminated by sewage."

This is the obvious thing. The waste materials from large population concentrations are bound to contaminate and do damage continuously unless properly controlled. Yet as usual we see the lesser evil, and because it is the more obvious one in this case we concentrate our hue and cry against contamination of our beaches, by city sewage, seeming to overlook a factor in water pollution which is by far the more damaging to wildlife. I refer to waste materials and liquids from industrial plants, particularly the paper pulp mills of the State of Washington.

Sewage on Shores

We've known most of the facts herein stated for at least the last 13 years. For instance: In 1937 the State Pollution Control Commission conducted an exhaustive survey of the Everett harbor area, and found that water pollution by the pulp mills there was out of all proportion to city sewage. Sewage shows up along the shores and there has been complaint in Everett too that the city's bathing beaches were being contaminated. However, the actual damage to fish life from city sewage in Everett harbor may be a minor matter compared to that done by the pulp mills.

To quote from the Pollution Commission's Report Number twelve, (published in 1948) page 18, referring to the SOUNDVIEW PULP COMPANY in Everett, "The pollution effect from this mill is equal to that of a city of about 1,700,000 population."

"Effects of waste sulphite liquor pollution extend 3½ miles or more up the Snohomish River on certain tidal conditions—Treatment of this refuse, (to lessen damaging pollution effects) none."

From page 22 of the above quoted Report, dealing with the **WEYERHAEUSER TIMBER TIMBER PULP DIVISION'S MILL**, in Everett. This mill contributes a "pollution effect—equal to that of a city of about 777,000 population.—Present treatment, (of waste materials) none."

Up the Snohomish River at Lowell, the **EVERETT PULP & PAPER MILL** employs the regular Kraft Mill recovery processes, and carbon wastes are burned. The Pollution Commission finds this mill, "Not a major source of complaint," and yet even so, they find: "The pollution effect from this mill is equal to that of a city of about 45,000 population."

In other words, the pollution effect of this one mill where the wastes have been treated to minimize their damage to fish life, is still equal to the raw sewage of the whole city of Everett!

Putting it in another way, not figuring any other factors than the Everett area Pulp Mills, it is as though a city of TWO MILLION FIVE HUNDRED AND TWENTY THOUSAND POPULATION was dumping its raw sewage into the Snohomish River mouth!

Then We Wonder!

This is the actual situation, according to reliable authority! It is as though practically the whole population of the State of Washington dumped its common sewage into this one river mouth—and then we wonder what is the trouble with the fishing!

Now let us reason the matter for just a moment. Are we not expecting too much of old "Mother Nature"? Are'nt we a bit unreasonable that we should expect to continue to take mature and developing salmon, wholesale, for food and sport, while at the same time imposing a condition upon the species whereby it is well nigh impossible for them to even exist? . . .

Thirty-five years ago we watched the gillnetters by the score as they drifted in the lower Snohomish River and the area where it meets the Sound. Looking to westward one could see the hulks of a dozen or more purse seiners working off the river bar, most any day when the salmon run was on. Naturally we marvelled then how any salmon could possibly get through that maze of nets. Yet nature is both adaptable and versatile. Life is both profuse and tenacious. A species dies hard.

No matter what we do, to drive the salmon to extinction, perhaps the time will never come when the Pacific Salmon will have entirely ceased to be. Somewhere along the coast there would remain a stream or two where the last survivors of this noble species could propagate and keep alive a scant remnant of the once countless millions that long ago thronged and crowded all our water courses at spawning time.

The bison no longer roam the plains, nor could they nowadays, what with highways and railroads criss-crossing, fences everywhere and most of the area developed into farms. The passenger pigeons could no longer exist in a modern America. But the sources of potential life for the salmon species are yet here, limited somewhat by man's encroachments, impaired necessarily to a degree by our developments but all the same no one can argue that the salmon could not be brought back to somewhere near their former numbers if we tried hard enough.

To quote once more from the Pollution Control Commission's Report Number Twelve, page 22: "The sulphite waste liquor from this mill (Weyerhaeuser Timber Co., Pulp Division) added to that of the Soundview Pulp Mills is thought to be the cause of kills of scrap fish in the Everett Harbor area."

Now how is that for a conservative statement ? ! ! ?

Scrap Fish

They've seen the shoals of dead fish along the Everett waterfront. They have tested the water of Everett Harbor and found it far deficient in life-giving oxygen. Interested persons have taken live, healthy herring and seen them die within a few minutes in the polluted water of Everett Harbor, and yet the strongest statement the State Pollution Commission cares to make, apparently, is that "waste sulphite liquor—is thought to be the cause of kills of scrap fish in the Everett Harbor area." (Note this "Scrap fish" reference please, for we'll come back to that in a moment.)

Do you suppose that long, long ago the Indians used to sometimes see those shoals of dead fish on the beach near the Snohomish tribal village of "Hebolb", on Blackman's Point, or "Preston Point", which is now part of the city of Everett at the mouth of the Snohomish River? If so we've never heard of it, and we've researched a great deal over the years past to try to reconstruct the aboriginal life as it existed before the white men came.

Do you suppose that somewhere in the historical annals of Snohomish County there are accounts of early settlers noting periodically the death of whole schools of fishes in the Everett Harbor area? Somehow we've missed finding any such accounts!

No, my friends, the truth of the matter is that those "fish kills" never happened on any major scale until after the big pulp Mills got going. Before then, the boys and unemployed men caught a lot of fish right off the Docks in Everett. That is where, in 1908 I saw my first "dogfish", a whole lot of them, squirming around on on the planking, strange little sharks with their rows of gill slits, white dots on their sides, wicked rows of razor-sharp teeth like minature mower sickels, with those curving cruel thorns growing out of their backs. They attracted my attentions more, as a kid just fresh from the plains of Nebraska, than the cod, perch or flounders that cluttered the Dock and were everywhere so common.

"Scrap fish" they call that kind in the fishing industry, and it is usually taken as of little consequence that they should die and are sometimes seen in shoals on the beaches of Everett Harbor and elsewhere. Baby salmon are seldom seen thus killed, and men may lightly assume that somehow or other that species must escape destruction.

Facts of the case are that mature fish, whether salmon or the other kinds, can take polluted water better than the immature specimens.

Baby Salmon

Baby salmon do not migrate in a seething, milling horde as do the candle-fish or herring, but in their trek to the sea they come down the streams by easy stages, taking of necessity several weeks to make the complete change from fresh to salt water. Coming into an area of oxygen deficiency these little fish gasp a few times and die and that's all there is to it. No human eyes are there to see what happens, but we can easily reconstruct the sequence.

Baby salmon are tiny creatures easily gobbled up by gulls, crows or other shore and water birds. Their defense, if any, is their speed of movement, normally, and their great numbers. They are shiny, and as they may struggle and gasp for life in the polluted water they attract attention of all sharp-eyed scavengers. Or, sinking to the bottom, (for all dead salmon will sink) these dead or dying babies become but tasty morsels to the crabs, crayfish or other water denizens better equipped by nature to stand rough going.

This is the sort of thing that goes on every day of the year, for a constant migration of baby salmon is taking place all the while. Just as some species or other of salmon is running up these North west Rivers practically all of the time, so the flow of their young goes on all the while as the developing fish seek the salt water where they shall spend the major portion of their lives.

These little fish can be observed everywhere along the shores of Puget Sound, if one watches carefully. In my work as a beach seiner I've cruised these shores for many years, watching for the various kinds of fishes, or for indications where they would be found. As the mouths of the Skagit, Stilliguamish and Snohomish Rivers are not far distant from each other, and as the young salmon spend some time in the Sound in the immediate vicinity of these river mouths, it could easily happen that young fish from the Skagit, or even the Duwamish would wander into Everett Harbor, sometime before they put out to sea entirely. There is no telling how far-reaching is the damage done by a death trap such as is constituted by waste liquids from the pulp mills there.

It is as though a city of 2,500,000, or practically the whole of the State's population were concentrated there where according to the Pollution Commission's Report the water is affected for several miles from the point of outflow. This fact is worth repeating, though we tire you with its repetition. No counter argument can defeat or nullify its logic.

A similar situation exists in many places throughout the state. To name only a few specifically; in Port Angeles, Anacortes, Camas, Hoquiam, Longview and Vancouver, moderate sized cities, all six of them, having a combined population altogether not half that of Seattle, there is a water "pollution effect" as great as from a combined population of FOUR MILLION SIX HUNDRED THOUSAND PERSONS! And this just from the Pulp Mills alone! Throughout the state from this one source of water contamination alone, it is as though our all-over population were suddenly jumped up **EIGHT AND A HALF MILLIONS!**

And then we wonder whats the matter with our fish life ! !

State Department

A State Fisheries Department Patrol Boat halts some commercial fishing rig out in the Sound, combs over the outfit and picks up a few illegal fish or finds the gear outlawed some way or other. The owner is hailed into court, duly tried and sentenced, and we pride ourselves that we have alert officers who thus protect the "public interest."

Up the rivers a watch is kept to see that no one gaffs a spawning salmon. Even the last few Indians must conform to white man's rules. (Their forefathers listened to the white man's words, but did not savy the fine print on the Treaty. We would have rebelled too, as Chief Leschi did!)

We all acknowledge the righteous position of such protective measures, and yet how can we square these weak attempts at wildlife conservation when we permit industrial concerns to dump damaging waste materials into our State's waters, (waters' that belong to you and me, to all of us), and thus make **DEATH TRAPS** of literally hundreds of square miles of our bays and rivers in strategically located places? . . .

Personally I'm sick at all this senseless waste! I am discouraged and disgusted at our people who will permit such conditions, when all the while they have the power to remedy the situation if they'd only use their heads!

How shall we remedy the situation?

Remedy

Discuss the matter with your fellows, with sportsmen and all those who love the Outdoors. Talk with the commercial fishermen, with the men who work in the pulp mills, and other industrial plants which contribute to pollution of our waters, for after all the pulp mills are not entirely alone in this crime against Nature. Talk with those who operate these mills and industrial plants, for they may really want to help a righteous program, if we'll all work together.

We're all "dollar chasers", one way or another, so let's not condemn anybody for merely grasping his opportunity. Let us simply approach the matter from the standpoint that there are not enough ducks so everyone can shoot a truck load, therefore we have to impose game limits. We may have to put certain limits upon the Game of Life itself!

REMEDY

There are two ways by which the salmon species could be exterminated. It could be done either by over-fishing, or by making the waters uninhabitable thru which the fish must pass. Prior to 1934 the greatest threat to the salmon in the waters of the state of Washington was from over-fishing. Fish traps, purse seines, reef nets, gill netters, trollers and sports fishermen; all were out to take their cut out of the salmon schools. Each year fewer and fewer salmon got through to the upper river riffles to reproduce their species.

Had they been strictly an ocean fish they would have stood a better chance of survival; for, after all, 70 percent of the world's surface is water. But of necessity they must run the gauntlet, through the straits, sounds, bays and inlets, and into the rivers, as they concentrate into narrowing areas. With all the gear working on the salmon, it was no wonder that the time came when a halt had to be called. Better to limit the fishing gear rather than pursue the species to extinction.

For several years there was talk and agitation, and in 1928 an attempt was made to outlaw purse seines and traps. However, in 1934 the sportsmen and commercial fishermen, too, took up the issue in earnest. A campaign of education, state-wide in scope made the people aware of what was happening. An initiative was written up, outlawing 'fixed gear' (fish traps) and greatly limiting other types of salmon-taking equipment, in the waters of the state of Washington. This law, known as Initiative Number 77, was voted into being by the people of the state in the regular election in the fall of 1934. It was the greatest single piece of legislation ever passed in favor of the salmon species, and while there may of necessity have to be other protective measures invoked from time to time, it is our studied belief that from the "salmon-taking" standpoint the fish are better off today than they were 15 years ago, and therefore should stage a come-back if there were no other factor out of joint.

A PLAN OF ACTION

In the previous paragraphs we have shown what this other factor is, **water pollution!** Let us stage a campaign of education throughout the state, and pass an Initiative in 1950 outlawing the dumping of waste materials wholesale into our waters.

For Wildlife Betterment. Sponsored by Whidbey Island Sportsmen

This Issue paid for by Puget Sound Resort Owners

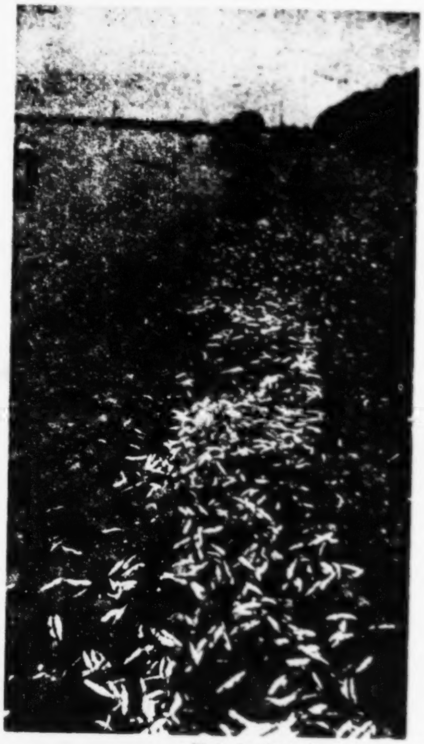
Whidbey Press, Oak Harbor, Washington

(See Other Side)

APPENDIX O-2
BILL'S RECORDING SERVICE

Puget's Poisoned Fish

WHAT KILLED THEM?



--Photo by Frank Ermence, Everett

On last July 31st '44 occurred one of the worst "fish kills" ever observed in the Everett harbor area. The beach for 5½ miles was silvered with countless thousands of dead fish, mute evidence of the destructive nature of pulp mill waste liquids and city sewage.

What we saw on the beach was only a portion of the total kill, for salt water fish usually sink, and probably only those destroyed close in washed ashore. With them died all the plankton caught in the poisoned water too, the minute life upon which the smaller fishes feed, the herring, candlefish or baby salmon.

On such occasions and under such conditions the waters take on a black, forbidding appearance, not sparkling cleanly as in the natural state, but only dark and dull, a death-dealing element to all the natural life that dwells therein.

It makes the sportsmen furious to see this needless waste, and everywhere all over the state the pitch of public feeling (among those who understand the situation) rises higher, **but not yet nearly high enough!** It is one thing to gripe and grouse, but quite another to get busy and take constructive ACTION!

Doing Something

Why doesn't somebody do something about it? Why does not our Pollution Control Commission take action against these persons or concerns that so pollute our waters? Haven't we a law already which could deal with such violation?

Yes, we have such a law. But there again the matter is so involved that our properly designated authorities are hamstrung in administering this law simply because we as a people do not understand water pollution. We are actually away back in "cave man" days in this respect!

Dumping all forms of waste materials into our bays, lakes and waterways today, is just as backward as heaving it out an open window or hole in the wall as in the days of long ago! "Kitchen middens" were once built up that way, those refuse heaps which were the sites of ancient human habitation in which archeologists so love to delve. And for all our vaunted "civilization" I wonder how we ourselves shall be regarded in some distant future time by the researchers into the misty "past"?

Because of ignorance, or plain stupidity in the mass, do we not run the risk of being rated sometime, in the matter of public sanitation, in much the same category with the people of old London town before the great plague and fire of the middle ages? It is something to think about.

Why does not our State Commission invoke the law against violators of the Sanitation Code? They have the power to fine every pulp mill up to one hundred dollars per day, and jail the managers of such plants besides, for dumping waste materials into the waters of our state. We'd say the revenue so acquired would help our Treasury a lot, as would the example and publicity assist in awakening all our people. But the matter is not as simple as that.

Just how can we discriminate against one class of violators and put the heat on them, under the present laws when in every city, town and hamlet, yes, in almost every home built along our water courses there is a violation going on?

What would happen if the sanitation law were to be enforced tomorrow?

Pollution Code

From Section 14 of the Pollution Code:

"It shall be unlawful for any person to throw, drain, run or otherwise discharge into any of the waters of the State, any organic or inorganic matter that shall cause or tend to cause a polluted condition of such waters according to the determination of the Commission, as provided for in this act. The Commission is authorized to bring any appropriate action at law in equity in the name of the people of the State of Washington, as may be necessary to carry out the provisions of this act."

From Section 20:

"Any person found guilty of willfully violating any of the provisions of this act, or any final written orders or directive of the Commission or a court in pursuance thereof shall be deemed guilty of a gross misdemeanor, and upon conviction thereof shall be punished by a fine of not more than one hundred dollars ($100) and costs of prosecution, or by imprisonment in the county jail for not more than one year, or by both such fine and imprisonment in the discretion of the Court. Each day upon which a willful violation occurs may be deemed a separate and additional violation."

Power To Correct Wrongs

We have given an authority and created a law which at present is unworkable. As a consequence our wildlife suffers, and unless we the people do something about it we shall also suffer, in time, far more than has been the case to date. We, the people of the state of Washington, have the power to correct these wrongs! An aroused public opinion could deal first with the biggest violators, and graduate the action on down until in time all sewage or other waste material was handled rightly, in a way that would damage nothing.

That is the way it could be done, but as the country settles up it seems to be the rule that our lakes and waterways deteriorate in exact ratio. There are places in the older settled parts of the country where all rivers and streams are regarded as little more than public sewers! We are rapidly coming to this position here in the West, what with b. coli counts running into many thousands on our most frequently used bathing beaches, and with fish kills a comparatively common thing.

Maybe when we get hurt enough we'll do something about it, but it is doubly hard to wage a "preventive" campaign.

Even the mighty Columbia river cannot purify itself from all the waste material dumped therein! There are times when fishermen cannot operate their nets in the Columbia, in places, because of a slime fungus growth in the water known as "sphaerotilus," caused by heavy concentrations of sulphite waste liquor.

Death Trap

Camas Slough, on the Columbia is a death trap to all fish life, with a "pollution effect" of a city of one million, one hundred and fifty-five thousand, due to the operations of the Crown Zellerbach pulp mill located there. Longview pulp mills have had a "pollution effect" of 894,000, while Vancouver rates 340,000. From a fish killing standpoint, caused by the pulp paper mills alone, it is as though almost the whole of the population of our State dumped their common sewage into the Columbia!

We have mentioned a similar situation existing in Everett, where a like "pollution effect" (equal to the sewage from 2,522,000 persons) is concentrated at the mouth of the Snohomish River, a much smaller stream than the Columbia. Probably 80 percent of all the baby salmon spawned on the upper riffles of this river system die as they make their way to salt water! Many streams are thus polluted, more or less. It is our studied conclusion that water pollution is today a larger factor in the decline of the salmon species than either "over-fishing" or the "high dams" in many places, which interfere with natural migration.

Industries To Blame

Pulp mill pollution is the big factor, but there are many other industries which contribute along with city sewage, to making our waters uninhabitable to fish. It is hard to measure this damage accurately, but why don't the sportsmen rig up a livebox, put several hundred baby salmon in it and float it down the Duwamish and into the Harbor in Seattle, and note what damage if any the fish would suffer over a period of days? This could be done in many places, and settle once and for all the question (if the matter remains a question in anyone's mind): what happens when little salmon come into the polluted water.

Who owns the waters of Washington if not the people as a whole?

To whom do the fish belong that inhabit those waters, if not to all of us?

Why then should we permit industrial concerns to pollute those waters and ruin our fish, when all the while there are methods by which pollution could be avoided?

How shall we go about the remedy?

How else can it be done, except first by a widespread campaign to acquaint our people with the situation?

We as a people rule ourselves, or are supposed to. Certainly we have the necessary power to do so. Why not an Initiative, eventually passed by all the people, adequately dealing with these wrong conditions?

In 1934 we passed a law dealing with fish traps, at that time the greatest single threat to the salmon species. We can do the same again. Lets GO!

JOHN METCALF

IT'S COOL
IT'S GREEN
IT'S GREAT
in
Washington State

Read this again then hand to a friend

(See Other Side)